Automatic Crash Notification Project: Assessing Montana's Motor vehicle Crash and Related Injury Data Infrastructure

Proposal Submitted by

Rural Institute on Disabilities
University of Montana
Missoula, MT

And

CUBRC
4455 Genesee St
Buffalo, NY 14225

To

Montana Department of Transportation

REVISED
October 22, 2008

PREFACE

The University of Montana's Rural Institute is pleased to submit this proposal to assess Montana's motor vehicle crash related data infrastructure and to develop recommendations for how Montana might take advantage of emerging new information technologies such as Automatic Crash Notification and Advanced Automatic Crash Notification (ACN/AACN). The project also will study crash survivors to assess and enhance Montana's rehabilitation and disabilities support capacity to reduce long-term disability associated with injuries sustained in motor vehicle crashes.

Our proposal reflects a close collaborative effort with CUBRC in Buffalo, NY, a not-for-profit research and development company with experience in crash-related data analyses, and ACN systems and technologies. We envision that the project will be accomplished in two phases. The first phase consists of four tasks and is addressed in this proposal. Specifically, Phase 1 will characterize Montana's current motor vehicle crash related data infrastructure and assess the flow of data from collection through reporting, sharing, analysis, use, and archival storage. In addition, we will identify and recommend data infrastructure modifications to maximize the benefits of both ACN crash data and enhanced, post-crash rehabilitation support. Finally, we will work to expand the Resource Facilitation program of the Brain Injury Association of Montana and explore approaches for increasing participation of disability and medical rehabilitation providers in the trauma system. Phase 2 will address implementation and evaluation of the data infrastructure modifications. Additional funding will be required for Phase 2 activities. The currently-available funding will be used to accomplish Phases 1 activities.

Acronyms and Abbreviations

ACN	Automatic Crash Notification
AACN	Advanced Automatic Crash Notification
BIAMT	Brain Injury Association of Montana
BRFSS	Behavior Risk Factor Surveillance System
CDC	Centers for Disease Control and Prevention
CUBRC	Historically, this acronym stood for Calspan University of Buffalo Research center. It is now a registered trademark representing the organization.
ED	Emergency Department of a hospital
EMS	Emergency Medical Services
GPS	Global Positioning System (which consists of a constellation of global positioning satellites and equipment to receive and process the satellite signals)
FARS	Fatality Analysis Reporting System
MVC	Motor vehicle crash
NEMSIS	National Emergency Medical Services Information System
NG 9-1-1	Next Generation 9-1-1
PAR	Police Accident Report
PCR	Prehospital Care Report
PSAP	Public Safety Answering Point
RFS	Resource Facilitation Service
RID	Rural Institute on Disabilities at the University of Montana
RTAC	Regional Trauma Advisory Committee
STAC	State Trauma Advisory Committee
TBI	Traumatic Brain Injury
TCS	Trauma Care System
TSP	Telematics Service Provider
Tx	Treatment

Table of Contents

EXECUTIVE SUMMARY

Problem

The US Department of Transportation, National Highway Traffic Safety Administration reports in its 2005 Traffic Safety Facts Annual Report that among the fifty states, Montana has the third highest motor vehicle fatality rate per 100,000 population (26.83) and the fifth highest motor vehicle fatality rate per 100,000 drivers (35.08). In addition, the data indicate that among all states, Montana has the third highest average elapsed time between crashes and EMS notification (9.72 minutes) and the eighth highest average elapsed time between crashes and hospital arrival of the crash victims (60.29 minutes). While there are issues with the completeness and accuracy of the data, they do illustrate comparative trends and suggest that opportunities exist for improving highway safety and the emergency response to crashes.

Long Range Goals

- Reduce the time to deliver emergency care to motor vehicle crash victims.
- Improve (better informed) triage, transport and treatment decisions.
- Improve long-term rehabilitation outcomes for motor vehicle crash survivors.

Short-Term Goals

- Develop a framework and a plan to create a comprehensive integrated motor vehicle crash data infrastructure capable of effectively utilizing data from emerging technologies such as ACN/AACN.
- Integrate the community disability service system into the trauma response network.
- Assess potential additional uses of various data sources for evaluation and planning.
- Develop recommendations for linking data sets into a coherent network that protects individual confidentiality.

Research Hypotheses

- This project does not lend itself to traditional hypotheses.

Project Objectives

Phase 1

1. Characterize Montana's current motor vehicle crash-related data infrastructure, including procedures and protocols, and develop a framework for creating a comprehensive integrated motor vehicle crash-related response data system – including ACN/AACN - and submit it to stakeholders for review.
2. Provide selected demonstrations of the comprehensive integrated crash response data system (including disability measures) and illustrate its use for crash response, research and analysis of system performance.
3. Expand the Montana Traumatic Brain Injury Registry and Resource Facilitation Program and assess the potential for integrating it into the Montana Trauma System.

4. Investigate approaches for increasing participation of disability and medical rehabilitation providers in the trauma systems.

Phase 2 (Future Funding)

5. Implement selected (MT approved) crash injury data-related infrastructure enhancements. Perform studies to evaluate the ability of the revised data infrastructure to improve crash-related metrics (e.g., response times, crash victim outcomes etc.) and support Montana research objectives.

Expected Products & Results from Phase 1

- A profile of Montana's current motor vehicle crash related data infrastructure.
- Recommendations for developing and implementing a system-wide comprehensive motor vehicle-crash and injury data infrastructure.
- Increased participation of hospital emergency rooms in the Brain Injury Association of Montana's Resource Facilitation Service.
- Increased participation of the rehabilitation and disability service providers in the trauma system.
- Draft plan for modifications to the existing motor vehicle crash related data infrastructure and protocol to optimize the benefits of ACN/AACN-related data for crash response and crash injury research.
- Demonstration of a prototype crash research data system and emergency response performance analyses using representative crash data from Montana.

Short Term Benefits

- Improved understanding of the motor vehicle crash related data infrastructure.
- Understanding of needed modifications to the system to integrate ACN/AACN information into the emergency response data system.
- Understanding of the components of and method for developing and implementing a statewide motor vehicle crash/injury reporting/tracking system.
- Expanded participation in the State trauma network.
- Increased services to those experiencing head trauma and potential brain injury from motor vehicle crashes.

PROBLEM STATEMENT

Highway crash-related fatalities exact an enormous human and financial cost. Each year, along the 4 million miles of roads in the U.S., about 5 million Americans are injured in 17 million crashes involving 28 million vehicles. Among the 28 million crash-involved vehicles, approximately 250,000 Americans suffer life-threatening injuries and 42,000 die from their injuries[1]. The economic costs associated with serious crash injuries amount to about $112 billion each year (excluding value for pain and suffering)[2]. The problem is proportionately more acute in rural states. In particular, Montana, South Dakota, and Wyoming are among the states with the highest motor vehicle crash fatality rates in the nation. Figure 1 shows how these rural states currently rank relative to other states using two fatality rate measures.

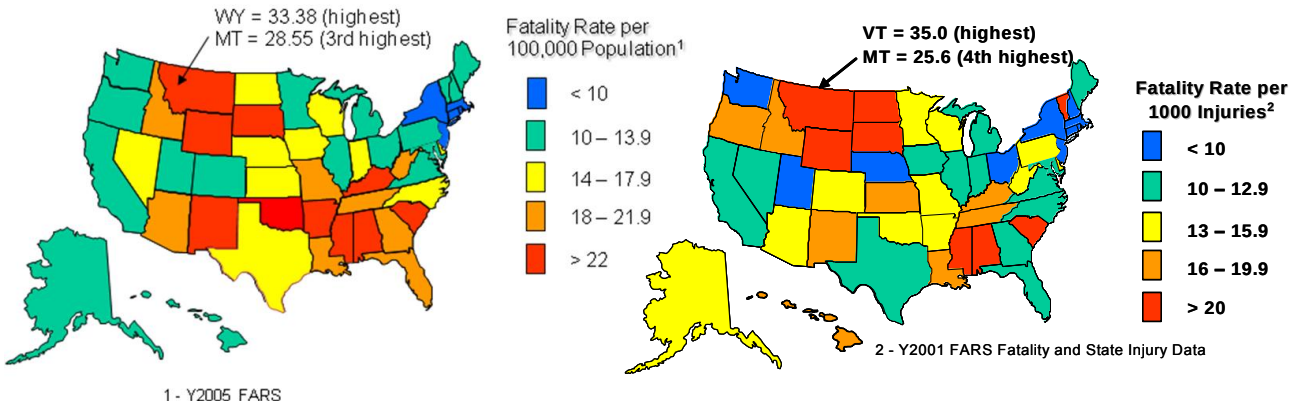

Figure 1. Motor Vehicle Fatality Rates per 100,000 Population and Motor Vehicle Crash Fatality Rates per 1000 Injuries.

In addition to the tragedy associated with the crash deaths, many of those injured in crashes survive with long term disabilities. These injuries have long term impact on the quality of life for both the injured individuals and their families. For example, many are unable to return to work or are limited in the type of work they are able to do.

In Montana in 2004, there were 229 people killed and 9263 people injured in motor vehicle crashes[3]. Similar numbers of fatalities and injuries occur in Montana every year. In addition to the tragedy associated with the crash deaths, many of those injured in crashes survive with long term disabilities, which may prevent them from returning to work or limit the type of work they are able to do. These injuries thus have long term impact on the quality of life for both the injured individuals and their families.

[1] National Highway Traffic Safety Administration (NHTSA) Traffic Safety Facts, http://www-fars.nhtsa.dot.gov/
[2] Blincoe L, Seay A, Zaloshnja E, .Miller T, Romano E, Luchter S, Spicer, R. The Economic Impact of Motor Vehicle Crashes, 2000, NHTSA Technical Report DOT HS 809 446, U.S. Department of Transportation, National Highway Traffic Safety Administration, May 2002.
[3] Montana Stats http://www.mdt.mt.gov/publications/docs/datastats/crashdata/montana_crash_data.pdf

Research[4,5,6] indicates that key factors in reducing motor vehicle related deaths, injuries, and resulting disability include but are not limited to improved highway design and maintenance, improved crash detection, reduced time to deliver emergency care to crash victims, improved (better informed) triage, transport and treatment decisions, and expanded availability of and access to appropriate emergency medical and effective rehabilitation services.

While each of these factors may be treated separately, maximizing emergency response performance may best be facilitated through the development of a comprehensive and inclusive trauma care system. New information technologies are emerging that offer opportunities to reduce crash deaths and disabilities. To take advantage of these new technologies, however, they must be integrated into the overall emergency response system. Moreover, the effort to take advantage of these new technologies may facilitate progress toward developing a comprehensive trauma care system. This project will conduct research to help Montana take advantage of these new information technologies, particularly for crashes that occur in rural areas.

BACKGROUND SUMMARY

The motor vehicle crash-related data infrastructure consists of data derived from police accident reports, prehospital care reports, public safety 9-1-1 records, trauma registry information, hospital treatment and referral packages, rehabilitation records, and community disability support records. It also includes the tools, procedures and protocols to collect, distribute, organize, utilize and archive the information. As in most sectors of society, new information technologies are improving the performance of systems of all types. This is true for emergency response to motor vehicle crashes where new information technologies offer opportunities to reduce crash-related deaths and disabilities. One such technology is Automatic Crash Notification. Automatic Crash Notification (ACN) takes advantage of emerging in-vehicle crash detection systems to provide accurate and timely crash-related data to public safety, prehospital care and hospital based emergency medical personnel. It is intended to provide actual crash data in near-real-time to support the dispatch of emergency services and assist in triage, transport and treatment decisions.

To achieve the promise of ACN and other new technologies, however, the data that they provide and the procedures and protocols for their use must be integrated into a comprehensive and coherent emergency response system that spans the time from the crash event through rehabilitation and community reintegration. It is particularly important that the information generated through new technologies be compatible with existing emergency response and trauma care data systems. As such, the effort to take advantage of these new technologies may facilitate progress toward the development of such a comprehensive trauma care system.

Emergency Response, Trauma, and Rehabilitation Care in Montana

[4] Davis DP, Peay J, Serrano JA, Buono C, Vilke GM et.al., The Impact of Aeromedical Response to Patients With Moderate to Severe Traumatic Brain Injury, Annals of Emergency Medicine, V46, Issue 2, Aug 2005
[5] Evanco, W, The Impact of Rapid Incident Detection on Freeway Accident Fatalities, Mitretek Rep WN 96W000071, June 1996
[6] Blow O, Magliore L, Claridge J, Butler K, Young J, The Golden Hour and the Silver Day: Detection and Correction of Occult Hypoperfusion within 24 Hours Improves Outcome from Major Trauma, Journal of Trauma, V47, N5 Nov 1999

Serious motor vehicle crashes (MVC) begin a series of events that usually engages emergency response, trauma and rehabilitative care systems. Figure 2 presents a rudimentary outline of expected pathways from crash injury and emergency response through community rehabilitation and integration. As the severity of injury resulting from a crash increases, survivors pass through increasingly more stages of the continuum.

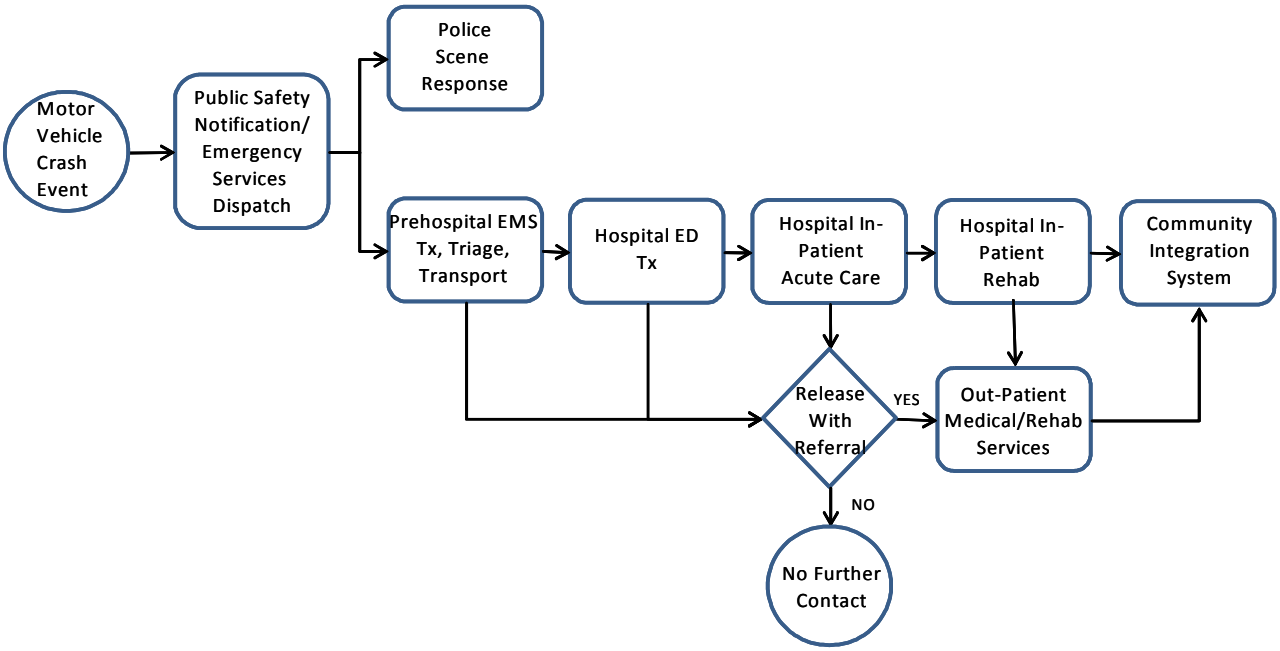

Figure 2. Expected pathway from crash injury and emergency response through rehabilitation and community integration

To optimize the care and provide the best outcome for injured crash victims, a *comprehensive trauma system* is required. Ideally, such a system would provide a continuum of care from the initial emergency notification, to prehospital care (at the scene and during transport), through emergency department treatment and definitive surgical care at an appropriate medical facility, and finally to rehabilitation and integration back into the community. Montana has begun developing such a comprehensive trauma care system (TCS).

The Montana Trauma System

While responding to a traumatic injury in a rural state such as Montana poses many challenges, the basic elements of a comprehensive care system are similar to those required in other states. These include detecting emergencies (sometimes in isolated areas where the event may not be observed), determining its location accurately, responding quickly with appropriate emergency care at the scene, and transporting the injured to medical treatment facilities where appropriate emergency trauma care and follow-up medical and rehabilitative care can be

provided. The seamless transition between each phase of care, while making efficient use of health care resources, is one of the hallmarks of a modern trauma system.

The first comprehensive plan for a Montana state-wide trauma care system was developed in 1994. This plan was addressed in comprehensive trauma system legislation in 1995. The plan encompassed trauma from all causes, including motor vehicle crashes. Unfortunately, the plan was not immediately funded. In 1999, the State legislature did authorize funding for developing and operating a trauma system, and the program has steadily grown through various funding mechanisms and a strong, state-wide commitment by many volunteers.

Legislation (50-6-401 - 415) establishing the Montana Trauma Care System calls on the Montana Department of Public Health and Human Services to plan, coordinate, implement, and administer a statewide trauma care system that involves all health care facilities and emergency medical services within the State. It also calls on the Department to develop a state trauma registry. Moreover, it articulates extended roles and responsibilities of the State trauma care committee, calls for regional committees, and describes linkages with the emergency medical services advisory council. Importantly, it calls for the Department to specify the information that "…must be submitted to the department, including information from health care facilities. For statistical evaluation of the state and regional trauma care systems, planning prevention programs, assessing trauma related educational priorities, and determining how trauma facilities and emergency medical services may comply with protocols and standards adopted by the department, and to establish the electronic format and other standards that a health care facility trauma data system is required to meet in order to qualify as a hospital trauma register."

Figure 3 shows the State's three trauma regions (Western, Central & Eastern), each of which is guided by a Regional Trauma Advisory Committee (RTAC). Montana's State Trauma Care Committee (STCC) oversees these committees, and provides advice and direction to the Montana trauma care and Emergency Medical Services (EMS) systems.[7]

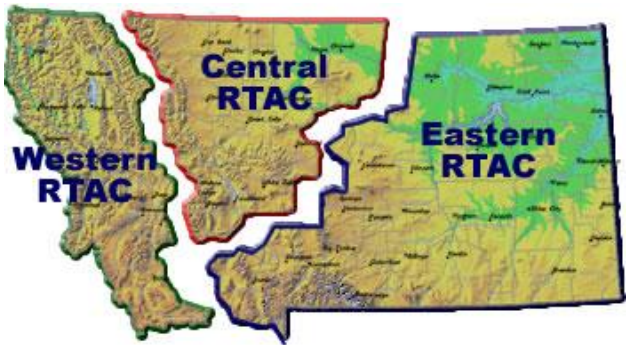

Figure 3. Trauma Regions in Montana (adapted from Montana DPHHS website)[8].

Rehabilitation and Disability Services in Montana

[7] http://www.dphhs.mt.gov/ems/emstrauma/traumaover.htm
[8] http://www.dphhs.mt.gov/ems/emstrauma/rtacmap.html

While not specifically mentioned in legislation, the trauma care system has consistently included rehabilitation as a key component of the system. In practice, this has emphasized medical rehabilitation providers. Yet, for many, rehabilitation does not end with medical discharge. Rather, it often extends into the programs of many community-based rehabilitation providers, including such programs as the State vocational rehabilitation system, the state system of centers for independent living, and the Brain Injury Association of Montana (BIAMT). In fact, as Figure 2 suggests, entry into the Montana rehabilitation system often occurs first through one of these programs when unanticipated disabilities emerge as a result of injuries.

Data Systems in Montana

While there has been significant progress in developing an integrated trauma care system and parallel progress in creating an integrated data system that allows for monitoring and quality improvement, there still remains room for improvement. In particular, advanced sensor and information technologies, which are coming of age, are expected to introduce new types of data that should be integrated into existing data systems in Montana. One such information technology is referred to as Automatic Crash Notification and Advanced Automatic Crash Notification systems (ACN/AACN). Integrating data from these new technologies provides the opportunity to further upgrade the existing data infrastructure..

Both the crash event and resulting crash injuries (including patient follow-up) are currently documented by various emergency responders and treatment facilities. For the most part, these are separate and independent data records. Figure 4 shows the post crash sequence of events from Figure 2, but with some additions. Events shaded in pink represent a key step in the chain of care that will ultimately provide input into the full crash-injury-rehab data record. Various data sources, which currently document each stage of the response, are shown in blue at the top of each box.

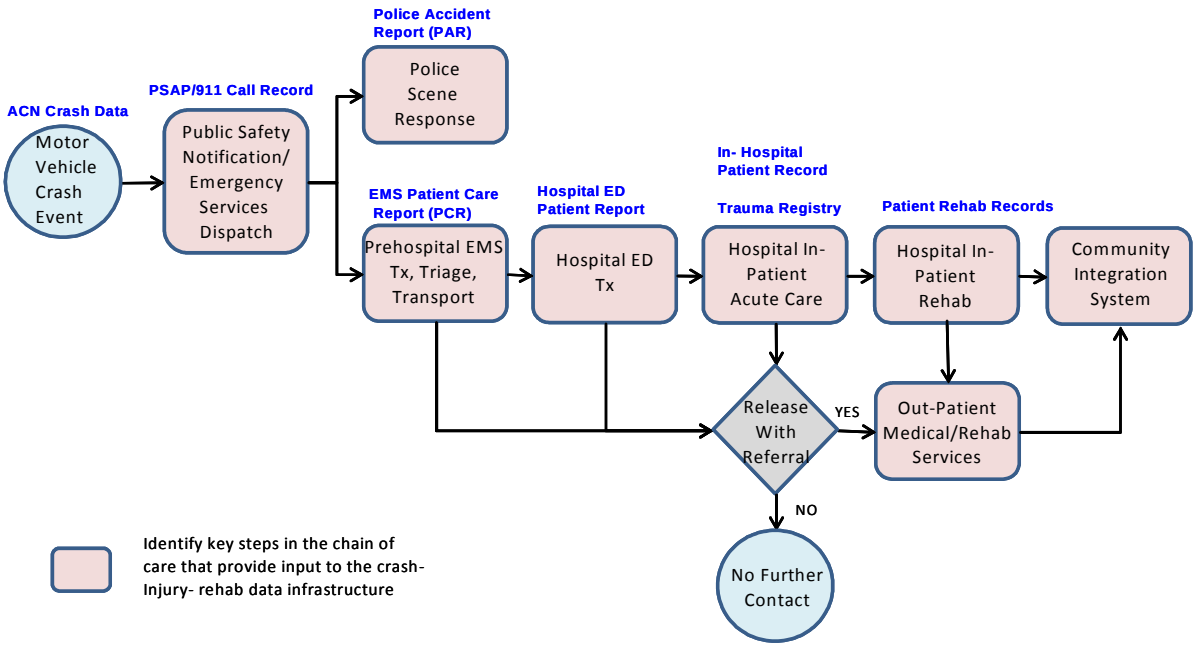

Figure 4. Key Steps in the Chain of Care that Provide Input to the Crash Injury-Rehab Data Record

As is typical in most states, these data sources are usually separate (some still on paper) and not well integrated or electronically linked. For example, the Emergency Medical Services and Trauma System Section of the Montana Department of Public Health and Human Services maintains a Statewide Trauma Registry. However, this registry is not currently linked with other data records that describe the crash event and follow-up treatment. One of the goals of this project is to develop recommendations for a comprehensive integrated MVC response data system that will provide this linkage and incorporate new data provided by emerging technologies such as ACN/AACN.

It is important to acknowledge that Montana's State Trauma Care Committee has an Information System Committee whose mission is to provide for collection, integration and analysis of trauma data in order to support meaningful studies. We propose to work with this committee and other Montana stakeholders currently collecting crash-related data to design an integrated data infrastructure that fully characterizes the crash event, crash victim injuries and treatment and rehabilitation outcomes in a way that best meets the needs of Montana.

New Technologies, Systems, and Tools

Many new information processing technologies are emerging that offer potential use to motor vehicle-crash and trauma response systems, including hand-held data collection and transmission devices, geographic information systems (utilizing real-time data from satellite-based global positioning systems), and more. One such system is Automatic Crash Notification and Advanced Automatic Crash Notification (ACN/AACN) systems.

Automatic Crash Notification

Automatic Crash Notification (ACN) systems, with in-vehicle crash detection sensors, Global Positioning Satellite (GPS) receivers and wireless telematics are an example of a new information technology that can facilitate emergency response and subsequent treatment. These systems automatically sense crashes in which air bags are deployed (or other pre-determined crash thresholds are exceeded), and immediately report the occurrence and location of the crash. Additionally, in a growing number of vehicles with AACN, detailed crash information such as crash severity (crash delta velocity), principal direction of force (frontal, side, rear impact), whether the vehicle rolled, whether multiple impacts occurred, etc., is also sent wirelessly with the automatic crash notification alert[9,10]. This information is transmitted via an automatic cellular phone call from the crashed car to a Telematics Service Provider (TSP) such as OnStar, ATX, or Cross Country Group.

As of August 2005, for OnStar alone, there were 3,000,000 ACN and 375,000 AACN equipped vehicles in the US[11]. This 2005 fleet generated an average of 800 ACN and 120 AACN crash notifications per month. As of June 2007, the average number of OnStar air bag deployments (ACN) increased to 1,100 and the number of AACN calls increased to 700 per

[9] Funke D, Bellis E, Donnelly B, Blatt **A**, McClellan R, Wilson G, Automated Collision Notification (ACN) Field Operational Test Final Report, National Highway Traffic Safety Administration, U.S. DOT HS 809 303, October 31, 2000.
[10] Bachman LR, Preziotti GR, Automated Collision Notification (ACN) Field Operational Test (FOT) Evaluation Report, National Highway Traffic Safety Administration, U.S. DOT HS 809 304, February 2001, page 6-7.
[11] Clint Soldan, Data Quality Analyst, OnStar, Private communication, August 2005.

month.[12] In 2008, over 4.5 million OnStar ACN/AACN vehicles are expected to be on the roadways.

Estimated number of ACN/AACN-equipped vehicles in Montana. From work performed elsewhere by our team members,[13] we know the number of OnStar calls currently being received in the state of Alabama. We also know the number of registered motor vehicles in both Montana and Alabama. As a first approximation (assuming similar vehicle make/model distributions, similar crash rates, etc.) we can expect the two states to have a similar number of OnStar ACN/AACN equipped vehicle crashes relative to the number of registered vehicles. Using the available Alabama data, this suggests that at present in Montana, we can expect 7-10 ACN/AACN crashes/month or 84-120 ACN/AACN crashes per year.

Potential contributions of ACN/AACN. In addition to providing immediate notification and crash location information, ACN/AACN technology has the potential to improve emergency message routing and response after a serious car crash. In the near future, ACN/AACN may also provide data that can be used together with new 'tools' to support the triage, transport, and treatment decisions of prehospital care providers and public safety personnel. These tools will consist of computerized algorithms that take advantage of the information provided by ACN/AACN systems (in the crashed vehicle), as well as first responder observations at the scene[14] and couple these crash specific data with geo-coded databases of local EMS and hospital resources (e.g., air medical services and trauma centers).

Tools to Support Rehabilitation and Follow-up

The emphasis on response to injuries from motor vehicle crashes typically focuses on immediate care from the point of the event through medical treatment at a clinic or hospital. A public health model takes a broader view; a view that spans the time from crash events through rehabilitation and community reintegration. Public health defines prevention to include primary, secondary, and tertiary prevention. The goal of primary prevention is to prevent specific events (e.g., motor vehicle crashes) or conditions (e.g., injuries) from occurring. The goal of secondary prevention is to intervene as quickly as possible to limit the consequences of an adverse event. The goal of tertiary prevention is to provide services and support to reduce the negative consequences of the event or conditions, and to maximize the outcome of the response or treatment.

Consistent with secondary and tertiary prevention goals, it is expected that disabilities associated with motor vehicle crash injuries can be reduced by: 1) early detection of those crash-related injuries that might lead to disabilities and 2) making improvements in the coordination, tracking and delivery of community rehabilitation and integration services for crash victims. To accomplish this, we must first develop an understanding of the possible short and long term disability consequences of specific motor vehicle crash injuries. In addition, a mechanism to identify and track motor vehicle crash victims with the potential for disability must be

[12] Briefing by Bill Ball, OnStar at Meeting of the Field Triage Medical Protocol Committee for Vehicle Telematics, June 5, 2007.

[13] Developing Tools to Measure the Benefits of Automated Collision Notification (ACN) Technology – The Alabama ACN Project", McGwin, MacLennan Blatt, Funke, Acker, Ball, Flanigan, Rue, Jan 2008, Paper in preparation.

[14] Newgard CD, Lewis RJ, Kraus JF, Steering Wheel Deformity and Serious Thoracic or Abdominal Injury Among Drivers and Passengers Involved in Motor Vehicle Crashes, Annals of Emergency Medicine, V45, No1, Jan 2005

implemented across the state so survivors can be effectively matched with rehabilitation providers in their area and follow up support provided on a continuing basis.

PROJECT GOALS, OBJECTIVES, AND SCOPE OF WORK

The long-term goals of this research are to reduce the time to deliver emergency care to motor vehicle crash victims; to make improved (better informed) triage, transport and treatment decisions where choices exist; and to improve long-term rehabilitation outcomes for motor vehicle crash survivors. The research will be conducted in two phases. This proposal is to conduct Phase1. This will involve characterizing Montana's current data infrastructure and developing recommendations for incorporating new information technologies to enhance the trauma response system, expanding community rehabilitation services to crash victims, and exploring ways to integrate disability and rehabilitation providers' more fully into the Montana Trauma Care System. Phase 2 will be based on recommendations developed from Phase 1 and would involve evaluating the effectiveness of the modified infrastructure. Phase 2 would require additional funding. Accordingly, this proposal provides detailed information only about the objectives and the scope of work for Phase 1. Specific objectives for Phase 1 include:

Objectives for Phase 1

1. Characterize Montana's current motor vehicle crash-related data infrastructure, including procedures and protocols, and develop a framework for creating a comprehensive integrated motor vehicle crash-related response data system – including ACN/AACN - and submit it to stakeholders for review.

2. Provide selected demonstrations of the comprehensive integrated crash response data system (including disability measures) and illustrate its use for crash response, research and analysis of system performance.

3. Expand the Montana Traumatic Brain Injury Registry and Resource Facilitation Program and assess the potential for integrating it into the Montana Trauma System.

4. Investigate approaches for increasing participation of disability and medical rehabilitation providers in the trauma systems.

BENEFITS

The short term benefits expected from this project include an improved understanding of Montana's emergency response data infrastructure related to motor vehicle crashes and injuries. This understanding is intended to identify improvements in the system that will both expand its reach and integrate its utility into additional service systems. In the long-term, any system improvement that enables emerging technologies, such as ACN/AACN, to be used effectively offers the potential for reducing the time to deliver emergency services to motor vehicle crash victims. This can improve treatment decisions affecting them, and improve their long-term

rehabilitation outcomes. The eventual addition of injury and disability outcomes to injury data systems will also broaden their research utility and benefits.

Finally, many individuals involved in crashes experience injuries that lead to long-term disability (Ameratunga, Norton, Bennett, & Jackson, 2004). Surprisingly, these injuries need not appear to be severe to have significant consequences (Richmond, Kauder, Hinkle, & Shults, 2003; Myou, Tyndee, & Bryant, 1997). Studies have shown that follow-up after the injury can improve outcome (Bell et al., 2004; Wade, 2006). In addition to improving emergency response through the use of ACN, the project will extend the focus of the system to explore the contribution of post-injury response and rehabilitation supports to reducing long-term disability. In the long term, this approach may benefit those injured in crashes and their families by reducing the days of work or education lost, and by reducing family conflict from unrecognized and untreated conditions (e.g., minimum traumatic brain injury).[15]

RESEARCH PLAN

The research plan consists of four inter-related tasks. Each task addresses one project objective. Figure 5 illustrates the relationship between the four tasks and their primary products/outputs. Each task is identified by a circle and its primary products and outputs are shown in the rectangles. The following sections present a justification for each task, a statement of the objectives and activities designed to accomplish the task, a detailed description of the methods proposed to achieve the stated objectives, and a description of expected findings and products.

[15] References: Ameratunga, S. N., Norton, R.N., Bennett, D.A., & Jackson, R.T. (2004). Risk of disability due to car crashes: A review of the literature and methodological issues. *Injury*, 35, 1116-1127. Bell , K.R., Hoffman, J.M., Doctor, J., Powell, J.M., Esselman, P., Bombardier, C., Fraser, R., & Dikmen, S., (2004). Development of a telephone follow-up program for individuals following traumatic brain injury. *Journal of Head Trauma Rehabilitation*, 19 (6) 502-512, 504-511. Myou, R., Tyndee, S., & Bryant, B. (1997). Long-term outcome of motor vehicle accident injuries. *Psychosomatic Medicine*, 59, 578-584. Richmond, T.S., Kauder, D., Hinkle, J., & Shults, J. (2003). Early predicators of long-term disability after injury. *American Journal of Critical Care*, 12(3) 197-205. Shults, R.A., Jones, B.H., Kresnow, M., Langlis, J.A., & Guerrero, J.L. (2004). Disability among adults injured in motor-vehicle crashes in the United States. Journal of Safety Research, 35, 447-452. Wade, D.T. , King, N.S., Wenden, F.J., Crawford, S., & Caldwell, F.E. (1998). Routine follow up after head injury: A second randomized trial. *Journal of Neurology Neurosurgery and Psychiatry*, 65, 177-183

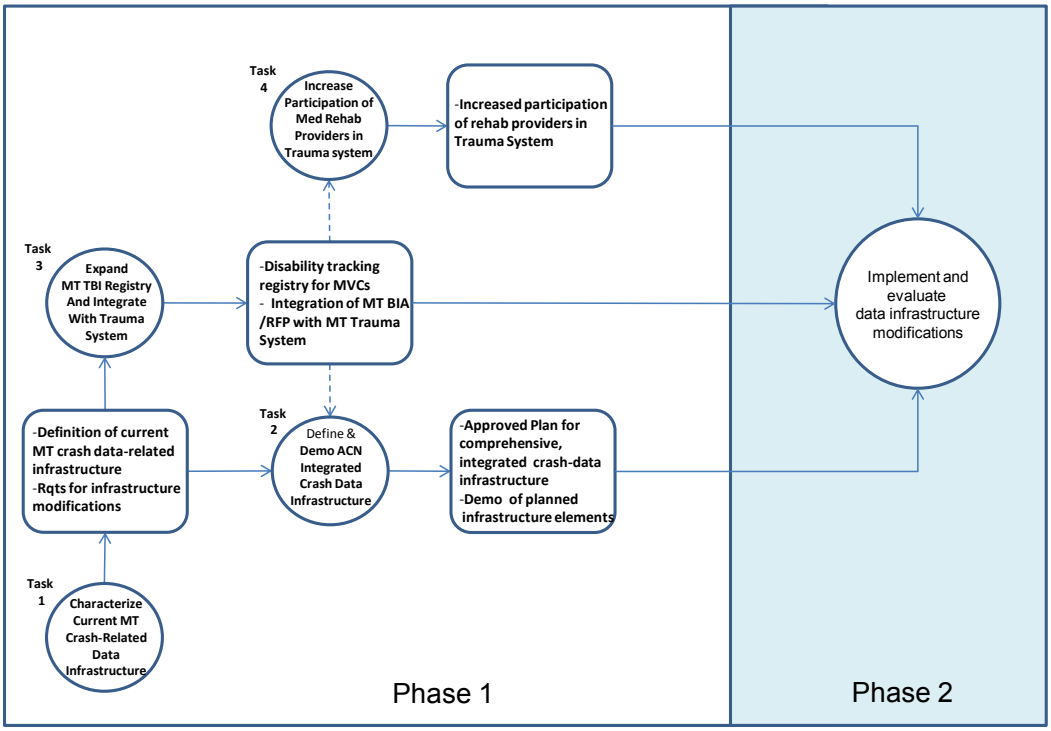

Figure 5 – Overview of Tasks in the Research Plan

TASK 1: Characterize Montana's Current Motor Vehicle Crash-Related Data Infrastructure.

One premise of this research is that new technologies (e.g., ACN/AACN) have emerged that have the potential to improve the efficiency and effectiveness of emergency response, treatment, and rehabilitation of people injured in motor vehicle crashes. These technologies will both change the information we collect and change the way we manage that information. In the process, they have the potential to transform the systems of response and rehabilitation to increase their integration and effectiveness.

In order to take the next step, however we must understand the existing trauma response data architecture. Accordingly, the OBJECTIVE of Task 1 is to characterize Montana's current motor vehicle crash related data infrastructure, procedures and protocols, and develop a framework for creating a comprehensive integrated motor vehicle-crash response data system that includes ACN/AACN. Activities include:

1) Identify agencies and organizations that collect, analyze, and use data related to motor vehicle crashes and related injuries in Montana.

2) Document the data systems and data dictionaries used for each system.

3) Document the protocol for collecting, analyzing, reporting, archiving, and sharing data, including legal requirements and limitations.

4) Analyze the content of the various data sets to identify common elements, disjunctions, and gaps, and map the course of information for each data set from initial collection through analysis, reporting, sharing, and archival storage.

5) In collaboration with Montana stakeholders, identify procedures, protocols, and tools that may be required to integrate ACN/AACN data into the motor vehicle crash data infrastructure in order to enhance emergency, medical, and rehabilitation responses and research.

6) Develop and submit for review a first draft of functional requirements for creating an integrated motor vehicle crash response data system that includes ACN/AACN

Methodology

Respondents in this project will be administrative leaders and key technical staff of agencies, programs, and organizations that are involved in collecting, analyzing, and using data concerning motor vehicle crashes in Montana. We propose to use a snowball sampling or chain referral technique (Salganik and Heckathorn, 2004) to identify respondents for this project. In snowball sampling, researchers begin with one or more selected respondents who then suggest additional respondents. In this way, the sample grows to represent the known universe of the population of interest.

We will interview key informants, beginning with the EMS and Trauma Systems Section of the Department of Public Health and Human Services (Jim DeTienne). Specifically, the interviews will be designed to identify data used by the agency in its motor vehicle crash-related activities. Attention will be focused on data that are related to activities associated with notification of and response to the crash event through rehabilitation and community reintegration of those injured. The interview topics will focus on the following questions: (1) What motor vehicle crash-related data sets do you collect, compile, record and/or report? (2) What are the data elements for each data set and how is the set structured? (3) Which elements are part of legal or regulatory requirements? Which are required by agency policy? (4) Who provides the data and how are they reported? (5) What is the quality (subjective and quantifiable) of each element? (6) Who analyzes the data? (7) How are they analyzed? (8) What reports are developed and who develops them? (9) To whom are the reports routinely distributed? (10) How are the reports used in policy making and program design? (11) Do you maintain a data archive/database and if so, who maintains it (a potential snowball referral)? (12) What software is used to archive and analyze the data? (13) What reports are routinely developed using the data? (14) How can the data be accessed by those outside the agencies? (15) What legal restrictions exist on sharing the data or reports with others?

Next, interviewers will request copies of recent reports that include analysis of motor vehicle crash events and related injuries. In addition, the researchers will request an electronic copy of the data fields (or data forms containing the set of data fields) and a data dictionary. These will be used for analysis.

Finally, researchers will ask the key informants to nominate additional agencies, organizations or programs in Montana that collect, analyze, report, and archive data relevant to motor vehicles crashes and related injuries. No limit on nominated entities will be set. Rather, respondents will be asked to rank the agencies or programs by the degree of connection to their program's work. In this way, the researchers will begin to develop a network map of related organizations.

Researchers will repeat the interview process with successive agencies, following the snowball technique, until the programs nominated are exhausted, or until the only entities remaining to be interviewed represent redundant members of the same class (e.g,, hospital emergency rooms). We expect that nominees will include such informants as major police and state trooper agencies (who document the crash event via the Police Accident Report), major EMS agencies (who document crash injuries via the Patient Care Report), selected hospital emergency departments, etc. until all steps in the chain of care identified in Figure 4 are identified and documented.

We propose to meet face-to-face with key informants for initial interviews. However, given the spiraling cost of gas and the amount of time required for travel, researchers will use telecommunications as much as possible.

Once the snowball technique achieves saturation, researchers will analyze the information collected. A system oriented approach will be employed to analyze the information that has been collected. A primary activity will involve developing a data matrix that cross-references each key variable in the identified data sets. This analysis will assess the content of the various data sets to identify common elements, disjunctions, and gaps.

Based on information collected from the key informant interviews and available documentation, researchers will develop a map describing the flow of the data from initial collection, through analysis, reporting, sharing, and archival storage. An important aspect of this analysis will be the documentation of the temporal flow of the data (i.e., the time at which data becomes available, is processed, etc.). Similarly, researchers will develop a schematic to represent the collection reporting, and use, as well as barriers to integration of, the complete set of data systems. Researchers will summarize these findings about the protocol and pathways of data sharing, and barriers to consolidation in a draft report.

The draft report will be distributed to the key informants for verification, corrections, and modifications. The revised draft report will be analyzed by CUBRC staff to identify areas of fit and disjunction for incorporating ACN/AACN into the existing system and to identify needed changes to the ACN/AACN data protocol to accommodate components of the Montana system (See Task 2). They will revise the draft to include recommended requirements for an upgraded crash data infrastructure, which will support emergency, medical, and rehabilitation response, as well as crash-related research activities. These recommendations will be incorporated into a subsequent draft.

Finally, these findings will be presented to key stakeholders for review and comment. Then, in collaboration with Montana stakeholders, the researchers will identify procedures, protocols and tools that may be required to integrate all parts of the motor vehicle-crash data infrastructure in order to enhance emergency, medical, and rehabilitation responses and research.

This effort will lead to a draft set of requirements to create a comprehensive integrated motor vehicle-crash response data system. These requirements will be submitted to stakeholders for review and comment.

Expected Findings and Products

This task will produce a profile of Montana's current motor vehicle-crash and related injury data infrastructure. In addition, it will create a set of requirements for a comprehensive integrated crash injury-related data infrastructure.

Summary

Figure 6 summarizes Task 1 major objectives and products, leading to Task 2.

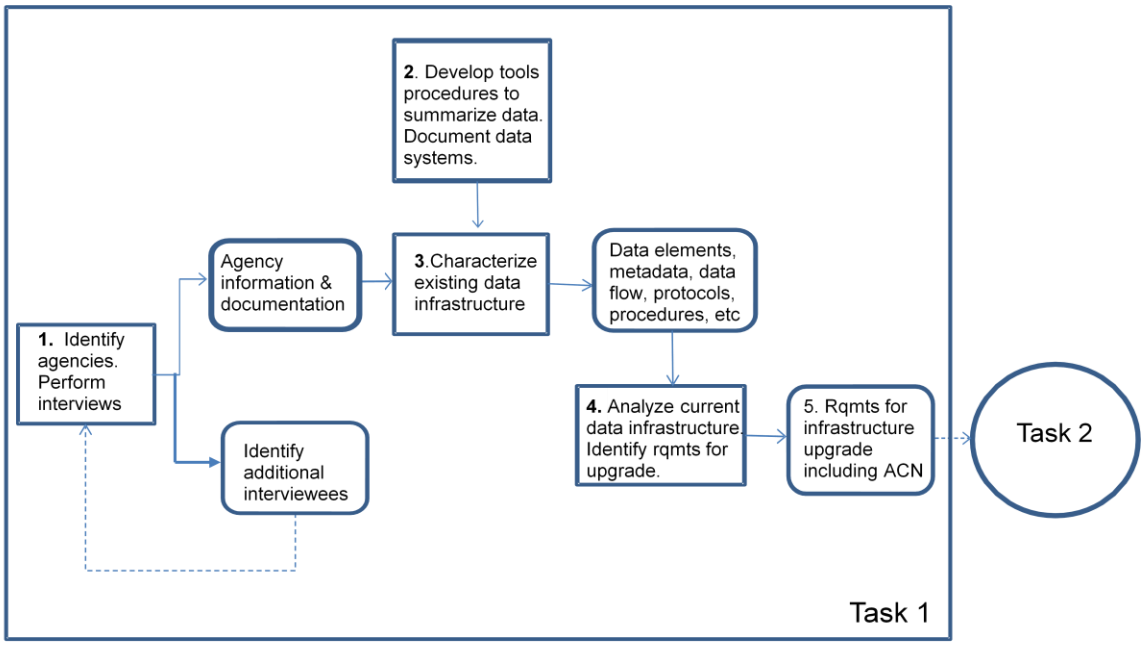

Figure 6– Organization of Task 1 Subtasks

TASK 2: Develop a Detailed Plan for Upgrading Crash Data Infrastructure

Now is a particularly important and appropriate time for Montana to undertake the development of a detailed plan for upgrading the crash-related data infrastructure and demonstrating its utility. National trauma triage guidelines have recently been amended to include the consideration of vehicle telemetry data in the field trauma triage guidelines. The same national expert panel also recommended that vehicle telemetry data be used to assist the dispatch of appropriate emergency services to crashes. In addition, the Next Generation 9-1-1 (NG 9-1-1) program is developing technology that will allow call takers and dispatchers at 9-1-1 Centers to send and receive data, digital pictures and video, email and text messages, and other modern communications from computers and handheld devices instead of relying solely on the traditional 9-1-1 voice-only telephone calls. This technology will greatly facilitate the delivery

of vehicle crash telemetry data to the appropriate 9-1-1 Public Safety Answering Points (PSAP). Of particular interest in this regard is that the NG 9-1-1 program has selected five sites around the country to test its NG 9-1-1 network prototype. Helena, Montana will be one of the test sites.

As Figure 4 illustrates, there are a variety of traditional data sources for near-real time crash and crash-related injury data. These include 9-1-1 PSAPs, police agencies, EMS, and hospital emergency departments. A pathway to acquire data from each of these sources will have to be devised so that data can be linked and integrated into an upgraded crash data system in a timely way.

Based on the requirements consensus developed in Task 1, Task 2 will define the specific modifications needed to create an upgraded crash data infrastructure, including modifications that enable integration of new data elements such as crash telemetry and disability measures. This design will be documented in a plan that will include illustrations (using representative or prototype data) to show how the existing crash-related data infrastructure can be upgraded to provide expanded information on the continuum of care received by crash victims - from the time of the crash event through rehabilitation and community integration.

Task 2 will also identify and illustrate how ACN/AACN vehicle crash data telemetry can be incorporated into the crash data infrastructure and be used to support Montana's crash response, research and analysis activities. Accordingly, the OBJECTIVE for this task is to provide selected illustrations of an integrated and upgraded crash data infrastructure (including vehicle telemetry and disability measures) and demonstrate its use for crash response, research and analysis of system performance. Specific activities include:

1. Define modifications to existing crash data infrastructure.

2. Document design including expected approach for prospective data collection and integration.

3. Demonstrate utility of selected infrastructure modifications

Methodology

Figure 7 provides an overview of the methodology for Task 2. This task is consistent with the traditional system engineering approach of employing a clear specification of user functional requirements to guide the system modification and validation tasks.

The output of Tasks 1 and 3 (described below) will be utilized to develop specifications for the upgraded data infrastructure. In particular, these specifications will detail the modifications needed to meet the functional requirements developed in Task 1. They will also address issues associated with data, including: routing and display, collection and reporting, archiving, and protocols and procedures.'

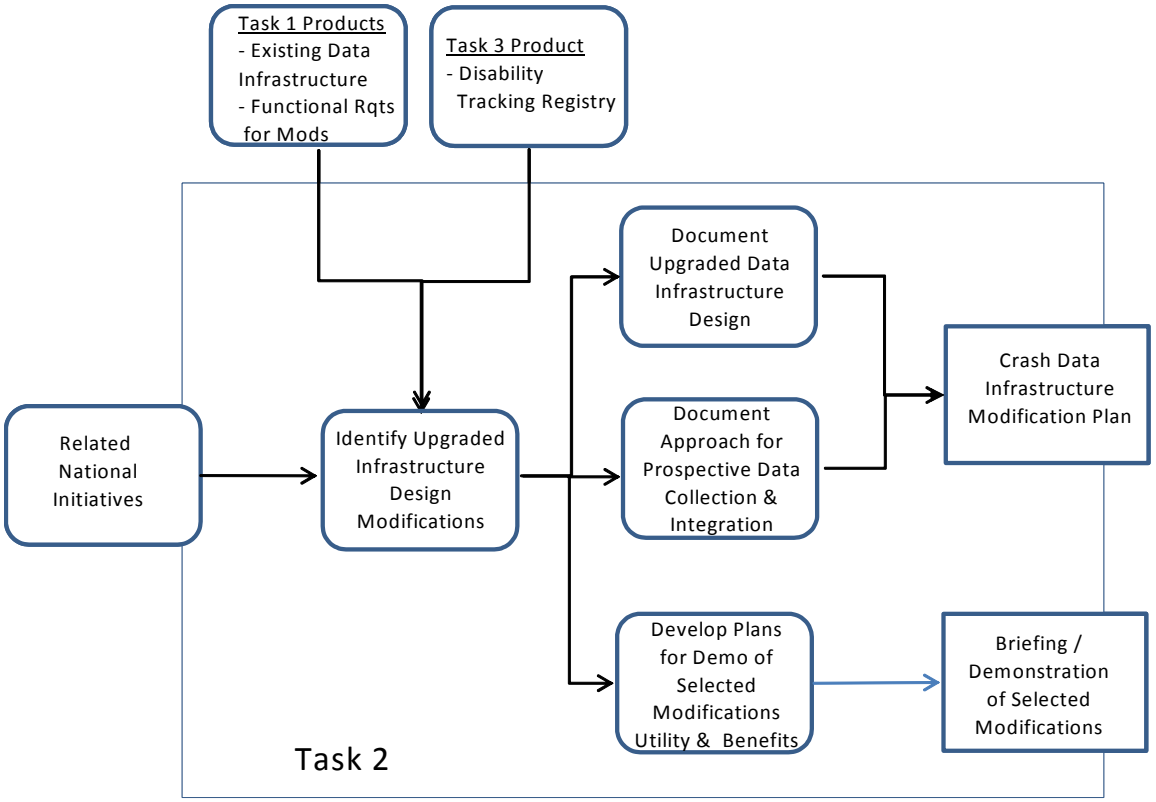

Figure 7. Overview of Task 2 activities

Particular attention will be focused on how ACN and AACN data arecurrently received, recorded, utilized and incorporated into the existing data infrastructure. For example, in most areas of the country, when a TSP (such as OnStar) receives an ACN or AACN message, the information about the crash is *verbally* conveyed by the TSP to the local PSAP, i.e, currently, no data from the crashed vehicle arerouted to the PSAP electronically. One objective of Task 2 is to specify how the flow of information from the TSP to the appropriate agencies in Montana can be improved so that the value of vehicle crash telemetry information is maximized. To accomplish this objective, some of the specific questions and issues that will be addressed are:

1. Who are the potential recipients of ACN/AACN alerts and what specific data & instructions should be sent to each location?
2. What is the most effective way to display the data so that it is actionable in real time?
3. Are any hardware / software improvements required at the receiving locations?
4. Is there a need to examine/modify existing protocols and procedures followed by these recipients?
5. How can the available ACN/AACN data be best captured and integrated with Montana's crash-related data infrastructure?

A prime objective of Task 2 is to conduct one or more demonstrations illustrating the operation of the modified (upgraded) data infrastructure. The specific demonstrations and the regions in which they will be conducted will be defined in collaboration with Montana stakeholders. We anticipate that surrogate data will be used to illustrate how selected high value functional requirements can be implemented in the modified data infrastructure.

Expected Findings and Products

There will be two key products of Task 2. First, we will develop and document an upgraded crash/injury-related data infrastructure design. The design will meet the requirements developed in Task 1 and will include definition of any new data elements and data capture, processing and storage procedures. In addition, tools that could augment the utility of the data will also be identified. Impediments to implementation of the infrastructure modifications, such as limitations on currently available PSAP equipment or the lack of institutional protocols, will be identified. The results of these activities will be documented in the Crash Data Infrastructure Modification Plan.

The second product of Task 2 will be a briefing and demonstration illustrating the expected utility of selected data infrastructure modifications. A particular focus will be on the expected benefits of incorporating ACN/AACN crash telemetry data.

TASK 3: Expand the Montana Traumatic Brain Injury Registry and Resource Facilitation Program and Assess the Potential for Integrating it into the Montana Trauma System

The emphasis on response to injuries from motor vehicle crashes typically focuses on immediate care from the point of the event through medical treatment at a clinic or hospital. A public health model takes a broader view; a view that spans the time from crash events through rehabilitation and community reintegration. Of course, not everyone who experiences injury from a motor vehicle crash is transported for medical treatment. Emergency responders (or occupants of a crashed vehicle) may not recognize when to refer an individual for medical care, especially when seemingly mild or occult (hidden) injuries occur. Further, even those with serious injuries who receive medical care and in-patient rehabilitation do not always make a smooth transition back into their community.

In one of the few population-based studies on the issue, Shults, Jones, Kresnow, Langlois, and Guerrero (2004) estimated that 1.2 million adults were living in the community with disabilities associated with motor vehicle crashes. Forty-one percent of those reported loss of work due to disability. Many individuals involved in crashes experience injuries that lead to long-term disability (Ameratunga, Norton, Bennett, and Jackson, 2004). Surprisingly, these injuries need not appear to be severe to have significant consequences (Richmond, Kauder, Hinkle, & Shults, 2003; Myou, Tyndee, & Bryant, 1997). One of the injury groups that has been studied are those who sustain traumatic brain injuries (TBI). Studies have shown that follow-up in the community after the injury can improve outcome (Bell et al., 2004; Wade, 2006).

Consistent with public health prevention goals, it is expected that disabilities associated with motor vehicle crash injuries can be reduced by early detection of those crash-related injuries that might lead to disabilities and by improving the coordination, tracking and delivery of community rehabilitation and integration services for crash victims. To accomplish this, there is a need for a mechanism to identify and track motor vehicle crash victims with the potential for disability so that they can be effectively matched with rehabilitation providers in their area and follow up support provided on a continuing basis.

One model for identifying and tracking individuals who sustain injuries is the Resource Facilitation Service of the Brain Injury Association of Montana (BIAMT). This developing model is based on national guidelines for services to people with brain injury (e.g., Connors, 2001). It is a low-cost, telephone- and computer-based public health service that promotes identifying brain injury early, educating survivors and families about TBI, and supporting survivors to get timely treatment and rehabilitation. Currently, the BIAMT's program involves five of Montana's approximately 63 hospitals.

We propose to explore the development of a disability tracking registry for motor vehicle crash injuries. This task will be led by staff from the BIAMT) in collaboration with research staff from the University of Montana's Rural Institute on Disabilities (RID). A key component of the program will be to assess and build upon the disability registry maintained by the Montana Brain Injury Association as part of their Resource Facilitation Service. BIAMT currently provides the only statewide system for follow-up information and referral for individuals experiencing brain injury. While this system is in an early phase of development and is limited to brain injury, it provides a model upon which a more comprehensive system of patient follow-up could be designed. This task will assess the capacity and system requirements for expanding the BIAMT's registry and patient follow-up system to include Montanans injured in automobile crashes.

Accordingly, the OBJECTIVE of this task is to expand the Montana Traumatic Brain Injury Registry and Resource Facilitation Program and assess the potential for integrating it into the Montana Trauma System. Activities designed to achieve this objective include:

1. Recruit 8 additional hospitals to participate in the BIAMT Resource Facilitation program.

2. Assess the capacity of and system requirements for expanding the Montana Traumatic Brain Injury Association's registry and follow-up system to include Montanans injured in automobile crashes.

3. Explore the current protocol used by law-enforcement personnel to screen for minimum traumatic brain injury at the site of motor vehicle crashes and develop recommendations for integrating referrals to the BIAMT into that process.

Methodology

The Brain Injury Association of Montana (BIAMT) is currently the only organization with a mission and system for providing follow-up information and referral to individuals experiencing brain injury across the State. The organization operates from Missoula using a Resource Facilitation Model (e.g., Connors, 2001). Figure 8 presents the basic model. Currently, five hospitals participate in the program to some degree, including the Billings Clinic, St, Vincent's, St. Patrick., Benefis, and Community Medical Center. Staff of these hospitals have been trained in the RFS process. Patients are referred to the RFS from the emergency room or at discharge from any other level of hospital care.

Once permission to contact the patient is secured, RFS staff mails an initial letter and information packet. This is followed by an initial phone call at three to six weeks after referral. The initial call follows a scripted assessment protocol, which is recorded in the computerized database. Based on the assessment, BIAMT staff may provide written information, make referrals, or help patients and their families develop plans for resolving problems at work, school or at home. BIAMT staff makes follow-up calls at 6, 12, 18 and 24 months, with additional calls scheduled as needed. RFS may also serve the brain injury survivor over a longer period to help address changing needs.

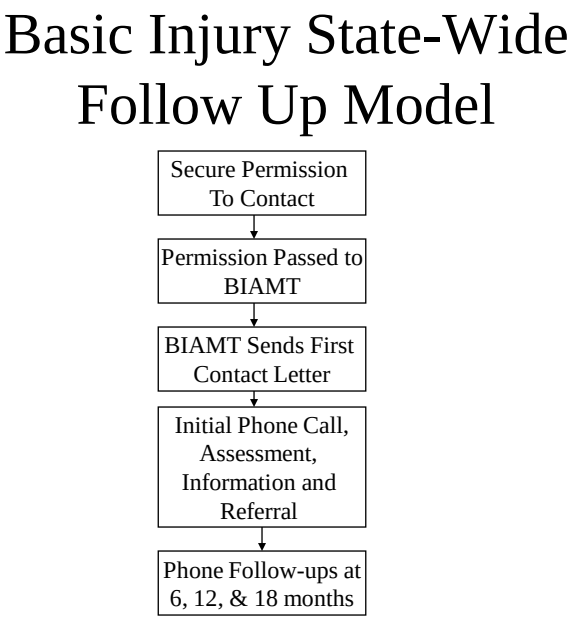

Figure 8. Depicts the flow of information and referral for individuals injured and referred to the Montana Brain Injury Association.

While this system is in an early phase of development, it provides a model on which a more comprehensive system of follow-up might be provided to those involved in motor vehicle crashes. At present, the RFS facilitator serves over 500 brain injury survivors enrolled in the service and has reached her capacity. Beginning in July 2008, additional State funding will increase BIAMT's capacity to provide facilitation services to more survivors.

As it is now implemented, the BIAMT follow-up system has several key features designed to focus on those who experience brain injury. These components will be expanded or modified to incorporate all injuries that occur as a result of motor vehicle crashes. Table 1 outlines the current components and potential changes to be explored.

Table 1
Current and Potential Components of State-Wide Injury Follow-up Model

Current Model	Potential Changes to be Explored
○ Focus on brain injury	○ Expand focus to include all significant injuries results from motor vehicle crashes.
○ Referral derived from emergency room personnel or self-referral.	○ Expand referral process to include responding police or patrol officers, as well as emergency responders.
○ Follow-up limited to experience of brain injury and service needs of those with brain injury.	○ Expand information available for dissemination to include a broader range of injuries and consequences.
○ Follow-up may include issues faced by family members.	○ Expand referral network to include agencies and programs that address treatment, rehabilitation, and community integration of people who experience disability from any injury associated with a motor vehicle crash.
○ No current systematic evaluation of programs services or activities.	○ Expand program evaluation to track the result of referrals (e.g., whether contact was made) and their effectiveness (e.g., the result of the services received).

It is important to note, however, that while the primary criteria for RFS enrollment is brain injury, many individuals involved in a motor vehicle crash that produces any injury are at a high risk for experiencing a brain injury of some magnitude. While such injury may not be associated with a visible head injury, the sudden forces that shake the brain inside the skull are similar to those now being experienced by soldiers exposed to explosions in Iraq. The symptoms of such brain injury may not be immediately apparent and may not manifest themselves for some time. Nonetheless, individuals who experience such minimum traumatic brain injuries may experience significant consequences (e.g., Talmor, Thompson, Legedza, Nirula, 2006).

Expand hospital participation. In Minnesota, where the RFS model was developed, the greatest challenge to making the system work was achieving full, consistent hospital participation. Program developers learned that substantial resources had to be devoted to creating relationships, training staff, maintaining relationships through regular telephone contact, and returning regularly for additional training and troubleshooting.

Expanding hospital participation in Montana will entail both renewing the BIAMT's relationships with currently participating hospitals, as well as recruiting additional hospitals into the network. The first step in this process will be to undertake an expansion of the BIAMT referral network to 8 additional regional hospitals – starting with larger facilities - that serve geographically dispersed areas across Montana.

This will take place is several stages. First, the project team will develop a brief survey of all Montana hospitals to assess their capacity and interest in participating in the program. In addition to capacity and interest, the survey will assess the familiarity of hospital staff with BIAMT referral procedures to identify needed training for their effective participation. Based on the survey results, BIAMT staff will develop, organize training events, and provide training using the most appropriate method (telephone, workshops, internet, or on site) to local hospital representatives who enroll in the program.

As described above, The BIAMT will increase service capacity to deal with the expected increase in patients referred by network participants. RFS staff will monitor changes in referral patterns, issues addressed, and utility of referrals using their current evaluation system. Findings will be shared with referral network participants routinely (e.g., quarterly) and a summary will be included in the project's final report.

BIAMT staff will conduct outreach activities to relevant State groups to raise awareness about RFS. They will develop a poster exhibit that includes issues and services relevant to follow-up with individuals injured in motor vehicle crashes. They will make presentations to report progress at the annual meetings of such groups as the Montana Hospital Association, the Montana Transportation Association, the State Independent Living Council, the Montana Public Health Association, and the State and Regional Trauma Advisory Committees (see Task 4).

In order to sustain interest in participating, BIAMT will develop and implement a system to maintain contact with hospital representatives to sustain their implementation of the referral protocol (e.g., providing monthly reports, etc.). BIAMT staff will also provide follow-up services to the expected increase in the number of patients referred by network participants. They will also monitor changes in referral patterns, issues addressed, and utility of referrals using their current evaluation system. Findings of system operations and services will be sent to referral network participants routinely (e.g., quarterly) and a summary will be included in this project's final report.

Assess capacity and systems requirements. The second step in this process will be to review the current structure of the follow-up computerized database to identify modifications needed to incorporate victims of motor vehicle crashes with additional injury and rehabilitation needs. Researchers will identify state-wide programs from Montana and other states that may provide a model for such services (e.g., Colorado spinal cord injury registry, etc.). This assessment will include identifying the modifications needed to integrate smoothly into the Montana Trauma System and to be incorporated into the upgraded crash data infrastructure recommended in Tasks 1 and 2.

BIAMT and RID research staff will use data from the RFS record system to estimate the costs required to continue to expand the program to all Montana hospitals and to all victims of motor vehicle crashes who sustain disabling injuries. These costs will be estimated from the average cost for providing services to patients who participate in the RF program and on the rates of MVCs leading to disabling injuries.

These data will also provide a link to the ACN/AACN analysis. For example, the advanced ACN systems provide a measure of the severity of the crash by providing crash delta

velocity. The higher the crash delta velocity, and the higher the forces and moments on the head of the crash victims, the higher the possibility of sustaining concussive and diffuse axonal injuries. Thus the availability of objective, quantitative crash severity information may aid in identifying crash victims that are at risk for brain injury consequences.

Assess crash-site screening protocol for minimal TBI. Finally, researchers and BIAMT staff will identify and assess on-site traumatic brain injury screening practice and immediate post-crash screening to develop recommendations for incorporating recent advances into the trauma response system. A particular emphasis will be placed on methods for providing referrals for individuals who may not receive any post-crash hospital care. The assessment will include meeting with representatives of the Montana Highway Patrol to learn about its current screening and triage procedures for assessing crash victims at the scene. They will also meet with representatives of the Montana Police Academy to ascertain the content of training for identifying potential TBI at crash scenes. Based on these and other interviews, researchers will develop recommendations for inclusion of a TBI screening or referral process. This will be particularly applicable for on-site referral for individuals released from the scene of the crash without transport to hospital

Expected Findings and Products

An objective of Task 3 is to link crash injury records to a rehabilitative and follow-up support registry by reviewing current follow-up protocols, and recommending changes to crash response protocols as appropriate. A report will summarize the experience and lessons learned in expanding BIAMT's registry model and patient follow-up system to include Montanans injured in automobile crashes. The report will outline the costs and benefits of such expansion, and provide recommendations for the final report.

Finally, a separate report will document findings of the exploration of current law-enforcement practices of screening for minimum traumatic brain injuries as the site of motor vehicle crashes. The report will also provide recommendation for integrating the BIAMT Resource Facilitation program into that process.

In addition to improving emergency response through the use of ACN, the project will extend the focus of the system to explore the contribution of post-injury response and rehabilitation supports to reducing long-term disability. In the long term, this approach may benefit those injured in crashes and their families by reducing the days of work or education lost, and by reducing family conflict from unrecognized and untreated conditions (e.g., minimum traumatic brain injury).[16]

[16] References: Ameratunga, S. N., Norton, R.N., Bennett, D.A., & Jackson, R.T. (2004). Risk of disability due to motor vehicle crashes: A review of the literature and methodological issues. *Injury*, 35, 1116-1127. Bell , K.R., Hoffman, J.M., Doctor, J., Powell, J.M., Esselman, P., Bombardier, C., Fraser, R., & Dikmen, S., (2004). Development of a telephone follow-up program for individuals following traumatic brain injury. *Journal of Head Trauma Rehabilitation*, 19 (6) 502-512, 504-511. Myou, R., Tyndee, S., & Bryant, B. (1997). Long-term outcome of motor vehicle accident injuries. *Psychosomatic Medicine*, 59, 578-584. Richmond, T.S., Kauder, D., Hinkle, J., & Shults, J. (2003). Early predicators of long-term disability after injury. *American Journal of Critical Care*, 12(3) 197-205. Shults, R.A., Jones,

TASK 4: Increase Participation of Disability and Medical Rehabilitation Providers in the Trauma Systems

As previously described, the Montana Trauma system is the State's core system addressing all trauma. While not specifically mentioned in legislation, the trauma care system has consistently considered rehabilitation as a key component of the system. Unfortunately, it has been difficult to recruit rehabilitation representatives – especially representatives from community rehabilitation provider networks – to participate in the system.

Accordingly, the OBJECTIVE of this task is to investigate approaches for increasing participation of disability and medical rehabilitation providers in the trauma systems. Activities designed to accomplish this objective include:

1. Attend and participate in meetings of the State Trauma Advisory Committee.

2. Attend and participate in meetings of each of the Regional Trauma Advisory Committees.

3. Obtain information from Rehabilitation providers to learn why they currently don't participate and how to facilitate their participation in the system.

Methodology

The major activities of this portion of the project will be for members of the research team to participate in meetings of the Trauma Care system. Specifically, staff of the BIAMT and RID researchers will attend meetings of the State Trauma Care Committee (STCC). We propose to arrange a presentation about ACN/AACN and the BIAMT's resource facilitation services. In addition, we propose to work with the STCC to arrange presentation by other community rehabilitation service providers (e.g., centers of independent living). Similarly, staff and regional members of BIAMT will arrange to participate in and present information about their programs to each of the Regional Trauma Advisory Committees.

Similarly, the research team will arrange a presentation about the trauma care system to key community disability and rehabilitation networks. Specifically, we will arrange presentations to such disability networks as the State Independent Living Council, the staff and board of independent living centers serving each of Montana's four human services regions, and to the board of the BIAMT. We will also arrange a presentation concerning the trauma care system to the advisory board of the Montana Disability and Health program. These presentations will provide the opportunity for obtaining information about Rehabilitation providers' nonparticipation.

B.H., Kresnow, M., Langlis, J.A., & Guerrero, J.L. (2004). Disability among adults injured in motor-vehicle crashes in the United States. Journal of Safety Research, 35, 447-452. Wade, D.T. , King, N.S., Wenden, F.J., Crawford, S., & Caldwell, F.E. (1998). Routine follow up after head injury: A second randomized trial. *Journal of Neurology Neurosurgery and Psychiatry*, 65, 177-183

In collaboration with key stakeholders, we will develop recommendations concerning the integration of community disability and rehabilitation issues for inclusion in state plans of complimentary organizations. For example, one approach would be to appoint a representative from the disability and rehabilitation services sector to one of the committees. In conjunction with the Montana Disability and Health program, we will explore the appointment of a person with a disability from a motor-vehicle crash to participate in the RTACs.

Expected Findings and Products

An objective of this project is to expand the participation of disability service providers and medical rehabilitation providers in the trauma care system . We expect that the proposed activities will increase awareness, knowledge and understanding of disability and rehabilitation service providers of the importance and use of the trauma care system, and that this will lead to greater participation by disability representatives in the system. We also expect that this task will increase the awareness, knowledge, and understanding of the participants in the TCS about the importance of and need for services to support those who experience long-term disabling consequences of injuries sustained in motor vehicle crashes; the "rest of their lives" beyond emergency response and medical treatment. As such, the integration of these sectors will enhance both and contribute to the improvement in outcomes for those individuals.

PRODUCTS

We anticipate several products from this research. First, we will produce a written profile of Montana's current motor vehicle crash related data infrastructure. This will include recommendations for developing and implementing a system-wide comprehensive motor vehicle-crash and injury data infrastructure. This will also include a draft plan for modifications to the existing motor vehicle crash related data infrastructure and protocol to optimize the benefits of ACN/AACN-related data for crash response and crash injury research.

Second, we will produce a demonstration of a prototype crash research data system and emergency response performance analyses using representative crash data from Montana. These first two products are intended to contribute to recommendations for future research and development.

Third, we anticipate that this project will result in increased participation of hospital emergency rooms in the Brain Injury Association of Montana's Resource Facilitation Service. This will produce an expansion in the number of Montanan's receiving needed community integration supports.

Fourth, a specific goal of this project is to increase participation of the rehabilitation and disability service providers in the trauma system. This is expected to produce a more comprehensive system.

Finally, we will produce six quarterly reports and a final report. The final report will summarize the activities of the entire project, including recommendations derived from the work.

IMPLEMENTATION

The primary focus of this proposal is to assess Montana's motor vehicle crash-related data infrastructure to develop recommendations for how it might take advantage of emerging new information technologies such as Automatic Crash Notification and Advanced Automatic Crash Notification (ACN/AACN). The project will be accomplished in two phases. The first phase consists of four tasks and is addressed in this proposal. Specifically, Phase 1 will characterize Montana's current motor vehicle crash related data infrastructure and develop recommendations of how that system might be modified to take advantage of emerging technologies. In addition , we will identify and recommend data infrastructure modifications to maximize the benefits of enhanced, post-crash rehabilitation support. We will also examine the cost-benefits of expanding the Resource Facilitation program of the Brain Injury Association of Montana to provide community integration supports to those injured in motor-vehicle crashes. New partnerships may need to be formed to implement such services.

Finally, we will explore approaches for increasing participation of disability and medical rehabilitation providers in the trauma system. A decision of whether to sustain such participation and in what ways will require careful consideration by the stakeholders.

If there is broad support for these recommendations, Phase 2 would involve implementing selected (MT approved) crash injury data-related infrastructure enhancements, performing studies to evaluate the ability of the revised data infrastructure to improve crash-related metrics (e.g., response times, crash victim outcomes etc.), and supporting Montana research objectives. Additional funding will be required for Phase 2 activities.

TIME SCHEDULE

The PERT Chart for the project is presented on the following page.

OVERALL PERT CHART (August 2008 – April 2010)

	D	J	F	M	A	M	J	JL	A	S	O	N	D	J	F	M	A	M	J	JL	
Administration																					
1. Establish contracts	x	x	x																		
2. Hire staff	x	x																			
3. Quarterly meetings and reports				x			x			x			x			x			x		
4. Close out and final report																				x	x
TASK 1: Characterize Montana's current motor vehicle-crash emergency response, medical, and rehabilitation data infrastructure																					
1. Identify agencies		x	x	x																	
a. Design interview survey			x	x	x																
b. Conduct interviews				x	x	x	x	x	x												
2. Develop tools, procedures to summarize data. Document data systems.					x	x	x	x	x	x											
3. Characterize existing data infrastructure (data flow, protocols, data sharing, etc.)						x	x	x	x	x	x										
4. Analyze content							x	x	x	x	x	x	x	x							
a. Develop requirements for upgrade (including integrating ACN/AACN)									x	x	x	x	x	x	x						
5. Draft report															x	x					
TASK 2: Develop detailed plan for upgrading crash data infrastructure																					
1. Define modifications										x	x	x	x	x	x						
2. Document design modifications											x	x	x	x	x	x	x				
3. Demonstrate utility of modifications													x	x	x	x	x	x	x		
TASK 3: Expand MTBIA registry and resource facilitation program and assess potential for integrating it into the Montana Trauma System																					
1. Recruit 8 new hospitals			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
2. Assess capacity to expand to other injuries													x	x	x	x					
3. Explore triage protocol														x	x	x	x	x			
TASK 4: Increase participation of disability and medical rehabilitation providers in the Trauma Systems																					
1. Attend and participate in State TAC						x												x			
2. Attend and participate in Regional TACs									x			x			x						

STAFFING

This section first outlines the time allocation by all staff by both administrative responsibility and proposed tasks. This is followed by background information and experience for the University of Montana and the CUBRC principal investigators and other key participants.

Name	Role in Study	Hours per Task					Total
		Admin	1	2	3	4	Hours
Seekins	Principal Investigator	298	201	104	201	73	877
Arnold	Senior Research Associate – Data infrastructure and MTBIA evaluation		390	173	373		936
Golbeck	Epidemiologist – Data infrastructure analysis		442	40			482
Aspevig	Health Care Informatics specialist – Data infrastructure analysis		485				485
Blatt	Senior Research Associate – ACN/AACN		222	407			629
Flannigan	Research Associate ACN/AACN		280	447			727
Majka	Data/GIS Analyst		138	217			355
DelVecchio	Database/Software Design		-	197			197
Miller	Data/Information Analyst		80	336			416
Zschaechner	Administrative and budgetary support	142	64	64	64	64	398
Lyons	Clerical support	128	243	243	173	80	867
Gilbert	Graduate student – BIAMT evaluation		151	151	1,387	45	1,734
TBN	Graduate student – Data infrastructure assessment		451				451
Morgan	Director, BIAMT –				480	40	520
TBN	Resource Facilitation Service staff BIAMT				1,480	80	1,560
Varies	Technical Support	35	35	35	35	35	175
Spas	Information specialist – Report preparation and dissemination	29	29	29	29	29	145
Total Hours		632	3,211	2,443	4,222	446	10,954

Tom W. Seekins, PhD (UM)

Tom Seekins is professor of psychology and Director of the Research and Training Center on Disability in Rural Communities at the University of Montana's Rural Institute on Disabilities. He received his Ph.D. from the University of Kansas in 1983. He has conducted disability research and service for over 25 years - emphasizing issues of consumer advocacy, rural health and disability, rural employment and economic development, rural community development and independent living, rural policy, and disability among American Indian tribes and reservations. He has published extensively in professional literature, presented reports of his work to numerous national, regional, state, and local organizations, and provided technical assistance to state and local programs. He has served as President of the American Association on Health and Disability and as President of the National Association of Rehabilitation Research and Training Centers. In 2006, he received the Allan Myers award from the DisAbility Forum of the American Public Health Association. He is particularly interested in the intersection between disability and community development.

Nancy Arnold, PhD (UM)

Dr. Arnold earned her Ph.D. in Human Rehabilitation from the University of Northern Colorado and M.A. in Sociology from The University of Montana, Missoula. Dr. Arnold is Associate Director of the Research and Training Center on Disability in Rural Communities at the Rural Institute and Research Professor in the Department of Sociology. She has over 25 years of experience conducting research on a variety of disability-related topics.

Amanda Golbeck, Ph.D. (UM)

Dr. Golbeck is professor of biostatistics in the School of Public Health and Community Health Sciences at The University of Montana. She earned her PhD in biostatistics from the University of California at Berkeley in 1983. She has held the position of professor with tenure in three other universities as well as at The University of Montana. She has over 25 years of experience as a research consultant, collaborating biostatistician, and independent investigator. She has published extensively in peer reviewed journals in public health, demography, and medicine. She has participated in executive education at Harvard University in the Graduate School of Education and at the John F. Kennedy School of Government.

James Aspevig MA (UM)

Mr. Aspevig is an Assistant Professor of the Department of Health Care Informatics at the University of Montana College of Technology. He holds a Masters of Science degree from The University of Montana (1989) in microbiology and a Masters of Public Health Informatics from the University of Illinois in Chicago (2006). He has been active in Montana's public health programs since 1995, including implementing internet connectivity and statewide electronic communications system for all local county health Department in Montana. In 2002, he assumed management of the Public Health Informatics Section of the Public Health Systems Improvement and Preparedness Bureau of the Montana State Health Agency. In this capacity, he assisted State and local public health programs in selecting emerging technologies that conformed to federal standards.

Alan Blatt, MS (CUBRC)

Alan J. Blatt is Program Director for the Center for Transportation Injury Research (CenTIR), at the Calspan-University of Buffalo Research Center. Prior to his current position he was employed at General Dynamics and its predecessor(s), Veridian, Calspan, and Cornell Aeronautical Laboratory for 32 years. During the past 8 years, Mr. Blatt has been involved in the development, test and evaluation of Intelligent Transportation Systems for public safety and emergency service delivery agencies. Mr. Blatt directs CenTIR programs which are directed towards research on the systems and technologies that promise to reduce the human and financial costs associated with motor vehicle crashes. Of particular interest in this area is his current work concerning the development of algorithms to predict potential occupant injuries using data from crash vehicles, development and test of systems to deliver time, critical crash information to emergency service providers and integration of new sensors into vehicles to

prevent crashes, or if they occur, provide information on their severity. Mr. Blatt was the Program Manager for the nationally-recognized Automated Collision Notification (ACN) Operational Test sponsored by the National Highway Traffic Safety Administration. In this capacity, he organized a team of private companies and public agencies to design a system to automatically sense the occurrence of a serious automobile crash and summon emergency assistance. Mr. Blatt also has 20 years of experience in pre-hospital emergency medical care as an advanced Emergency Medical Technician (AEMT) and as a senior EMS instructor and volunteer on a local ambulance/rescue squad. In those capacities, he has first hand experience with issues related to emergency dispatch, on-scene auto crash victim extrication, stabilization and transport. Mr. Blatt has over 50 technical publications in the aerospace, intelligent transportation and crash injury research areas.

Marie Flanigan, PhD (CUBRC)

For twenty years, Dr. Flanigan has performed technical work in both the Aerospace and Transportation arenas where she acquired extensive experience in the design and conduct of experimental ground and flight test programs, as well as extensive experience in data analyses and computer modeling. These activities have been directed at solving a broad range of technical and engineering problems in the areas of chemical physics and information technology. Dr. Flanigan received her undergraduate degree at Villanova University and her PhD in Physical Chemistry at the State University of NY at Buffalo. Prior to her current position as a Principal Investigator at the Calspan-University at Buffalo Research Center (CUBRC), Dr. Flanigan was employed at General Dynamics, in Buffalo, NY (previously called both Veridian and Calspan) where she worked on the Midcourse Space Experiment (MSX) satellite project as well as various projects for the Center for Transportation Injury Research (CenTIR). In part, because of her experience as a private pilot, Dr. Flanigan is currently leading a CUBRC team which has developed and maintains a web-based, password-protected, Geographic Information System (GIS) containing detailed data on air medical base helipads, communication centers, rotor wing coverage areas and major receiving hospitals in the U.S. The Atlas and Database of Air Medical Services (ADAMS) was initially developed to provide the geographic data and communication links needed to support (future) real-time, wireless routing of Automatic Crash Notification (ACN) alerts from a serious car crash to the nearest air medical base and trauma center. The intent is to enable response preparations to begin at these locations even as first responders are traveling to the scene. Dr. Flanigan and her colleagues are also working on various projects involving emergency infrastructure databases, trauma system access and crash data analyses. She currently has over 50 technical publications in the aerospace and transportation safety arenas.

Kristen Morgan, M.S.W., BIAMT

Ms. Morgan received her Masters Degree in Social Work from the University of Montana in 2006. She has served as the Resource Facilitator for the Brain Injury Association of Montana since August 2005. Her primary responsibilities have included enrolling Montanan's in the Resource Facilitation Service (RFS), providing scheduled follow-up calls to assess the individuals' and families' needs in adjusting to life with a brain injury, identifying community resources, increasing brain injury awareness in individuals, families, state and local agencies, communities across the state of Montana, providing outreach and training (on RFS) to hospitals participating in the Resource Facilitation Service referral program.

FACILITIES

This project has minimal facility or equipment needs. The University of Montana provides staff of the Rural Institute on Disabilities with office space on the Missoula campus. Similarly, CUBRC occupies offices at CENTIR in Buffalo, New York. The Brain Injury Association of Montana has its offices in Missoula. All offices are fully accessible to people with disabilities. CUBRC staff have state of the art computer and software equipment for conducting research on ACN/AACN.

MDOT INVOLVEMENT

This project will require the involvement of MDOT in several ways. First, we will seek nominations of key informants from MDOT staff for Task 1. These nominations may include other MDOT staff directly in being interviewed for Task 1. In addition, other key informants may nominate MDOT staff to be interviewed and the researchers will request the cooperation of nominated MDOT staff.

The interviews conducted as part of Task 1 involve collecting key documents, data base files (without individual identifiers), and data dictionaries. Researchers will ask the same of any MDOT staff who may be interviewed.

Finally, MDOT staff will be asked to provide guidance and input into the reports and recommendations derived from this work.

BUDGET

University of Montana

University of Montana Budget

The budget is presented in two ways to reflect the major components of the project. First, the overall budget justification is presented. This is followed by the overall budget plan organized by Federal and State fiscal years.

Second, specific budgets and budget justifications are provided for the two major contracts, CUBRC and BIAMT. These are also organized by Federal and State fiscal years.

Overall Budget Justification

First, we present the overall budget justification. This describes staff and operations of the primary applicant, the University of Montana, and highlights the costs of two contractors. Specific budgets and justifications for these two contractors are presented separately.

PERSONNEL ($326,965)

Salary and Wages - ($256,234): The budget reflects a 3% salary increase effective October 1 in each year.

Principal Investigator: Tom Seekins, Ph. D.**,** (877 hours, 23 months): Dr. Seekins is the Director of the Research and Training Center on Disability in Rural Communities (RTC:Rural) and Professor of Psychology. He will serve as Principal Investigator for the project and provide overall direction. He will provide program direction and administrative oversight, including oversight of subcontracts to State University of New York (SUNY) and Brain Injury Association of Montana (BIAMT). He will serve as chairperson for quarterly team meetings. He will serve as liaison with Montana Department of Transportation (MDT) and other project advisors. Finally, he will be responsible for preparing quarterly and final reports.

Epidemiologist: Amanda Golbeck, Ph.D. (482 hours, 16 months). Dr. Golbeck will have primary responsibility for organizing and conducting the work of Task1. The objective of Task 1 is to characterize Montana's current motor vehicle crash related data infrastructure, procedures and protocols, and develop a framework for creating a comprehensive integrated motor vehicle-crash response data system – including ACN/AACN. This will include directing the development of data collection protocol, collecting and supervising the collection of data from key informants, developing and conducting an assessment plan, and developing statements of key requirements for Task 1. In addition, she will contribute to the conduct of Task 2 through her findings on Task 1.

Heath Care Informatics Specialist: James Aspevig, MPHI., (485 hours, 13 months). Mr. Aspevig will be directly involved in interviewing key informants and analyzing data from those interviews as a major component of Task 1.

Senior Research Associate: Nancy Arnold, Ph.D**., (**936 hours, 18 months): Dr. Arnold is Associate Director of the Research and Training Center on Disability in Rural Communities, Rural Institute on Disabilities. She will work on Task 1 and Task 2, assisting in the development of the interview protocol, conducting interviews, and analyzing findings. In

addition, she will devote coordinate the work of the BIAMT on Task 3. Specifically, she will be responsible for conducting the evaluation of the costs and benefits of the BIAMT expansion, and estimating the costs of further expansion.

Graduate Research Assistant: Desleigh Gilbert, B.A., (1,734 hours, 20 months) The Graduate Research Assistant will assist in developing and evaluating the BIAMT's Resource Facilitation Service as part of Task 3.

Graduate Research Assistant: TBN, (451 hours, 10 months). This Graduate Research Assistant will work with Dr. Golbeck to develop data infrastructure interviews, schedule interviews, and organize data derived from the interviews, including the proposed matrix of data elements.

Information Specialist: Diana Spas, M.A, (145 hours,17 months): Ms. Spas will provide information dissemination assistance and support. Specifically she will develop a website for the project and post to the site. In addition she will assist in preparing project reports for broad dissemination to the public.

Research Project Manager: Lynda Zschaechner, M.P.A., (398 hours, 23 months): Ms. Zschaechner will be responsible for supervising and coordinating support staff, for preparing and coordinating general services contracts, and for monitoring the budget monthly for review by the Principal Investigator.

Program Assistant: TBN**, (**Vice Lyon, B.A.,) (867 hours, 20 months): The program assistant provides office support, including word processing, copying, data entry, filing, and records keeping as well as making travel arrangements, processing payments, and handling bulk mailing.

Technical Support: Varies, (175 hours, 20 Months): The Rural Institute provides computer technical assistance and support; staff time is charged to grants as services are rendered.

Fringe Benefits - ($70,731). Fringe benefits are based on an established rate of 31.0% of salary for faculty and administrators on full year appointments, 25.0% of salary for faculty and administrators on academic year appointments, 20.0% of salary for faculty and administrators on academic year appointments who are eligible for extra compensation, 27.5% of salary for classified positions; 1% of salary for graduate students during the academic year and 13% of salary for graduate students during the summer. FICA, University Retirement, and other standard benefits are included.

Health benefits are calculated beginning at $626 per month per FTE and increase $50 per month per FTE in June of every year. Health benefits are calculated on a prorated FTE for eligible part-time personnel.

CONSORTIUM: ($428,142)

CUBRC -State University of New York (SUNY): ($363,448). This contract has primary responsibility for Task 2. The OBJECTIVE for this task is to provide selected illustrations of an

integrated and upgraded crash data infrastructure (including vehicle telemetry and disability measures) and demonstrate its use for crash response, research and analysis of system performance. Detailed scope and budgets attached. In addition, they will provide support to Task 1 to insure the structured interviews address key issues of ACN/AACN). A detailed scope of work, budgets and budget justification is provided separately below.

Brain Injury Association of Montana (BIAMT): ($64,694). This contract has primary responsibility for Task 3. The objective of this task is to expand the Montana Traumatic Brain Injury Registry and Resource Facilitation Program and assess the potential for integrating it into the Montana Trauma System. In addition, BIAMT will be significantly involved in achieving the goals of Task 4. The objective of Task 4 is to investigate approaches for increasing participation of disability and medical rehabilitation providers in the trauma systems. A detailed scope of work, budgets and budget justification is provided separately below.

TRAVEL ($3,163)

All travel reimbursements (including mileage, per diem, and other expenses) will follow state and federal rate increases and decreases as they are approved within The University of Montana. All travel estimates include transportation, lodging, meal per diem, and miscellaneous items such as (but not limited to) airport parking, ground transportation, internet access charges, and metro fares.

In-State Travel ($3,163) These funds cover trips for Principal Investigator, Epidemiologist, Informatics Specialist, and Graduate Research Assistants to various locations in the state for meetings with key persons. A detail list of who, where, and purpose of each meeting is provided in the *"University of Montana Travel Detail"* table following the UM budget pages.

Out-of-State Travel ($0). No out-of-state travel is requested.

EQUIPMENT (There is no budget request for equipment.)

SUPPLIES ($6,430).
The general supply line covers the costs of project supplies, general office consumables, and software licenses. Additionally we have allowed $2,600 for a computer.

OTHER ($15,715)

Printing and Reproduction ($4,505)

Printing ($1,270). These funds are for printing data collection sheets and reports. The University policy allows *Printing and Graphics* department first right of refusal for all campus printing needs. Those charges appear as a separate line item from photocopy charges. Often until a product is designed or written we do not know if it will require printing or photocopying, therefore the dollars between these two lines are often interchangeable.

Photocopying ($3,235). These funds are for general office use and for copying data

collection sheets and reports.

General Contracted Services – Disability Registries, ($3,300). These funds are for a contract developer working with the Traumatic Brain Injury monitoring system to assist in customizing the Montana TBI data system to reflect the goals and objectives of this project.

General Contracted Services – Braille Services ($435). We have a policy of providing alternate formats for all of our dissemination materials. Those formats are usually large print, Braille, and RTF.

Communication ($5,254). Line items in this category are based on past similar research projects.

Telephone - Fixed, Local, ($1,639). This line item includes expenses associated with basic telephone equipment, monthly service fees, cell phone charges, and computer network port charges.

Telephone - Long distance ($735). Periodic and as-needed long distance calls will be necessary to complete the activities of the project.

Telephone – Conference Calls ($1,600). Periodic and as-needed teleconferences will be conducted to coordinate and monitor contracts and activities and to provide information and education to Montana participants.

FAX ($100). This line item is included to facilitate communication. Such charges are expected to be minimal.

Credit Card Calls ($160). Because the key personnel travel for other projects, it is expected that they will make long-distance calls to benefit this project while out-of-town.

Postage ($1,020). Funds cover general postage and bulk mailings for dissemination of materials and reports.

Meeting and Conference Costs ($1,200). These funds cover expenses associated with meetings or conferences such as room or equipment rental, phone access charges, food or refreshments - including bottled water, for training sessions, conferences or meetings.

Advertising and Program Support ($500) These funds are allocated to cover advertising costs for filling to be named positions or unforeseen vacancies.

Recruitment: Background Checks ($100) The University requires background checks on all new employees.

Shipping - Freight - FedEx ($421). The University of Montana expenses FedEx charges to this line. It is included to cover the cost of mailing time-sensitive items.

MODIFIED TOTAL DIRECT COSTS ($780,415)

In-Direct Costs ($80,455) The University of Montana has agreed to an indirect cost rate of 20% on Modified Total Direct Costs (MTDC). MTDC is Total Direct Costs less subcontracts in excess of $25,000 to any one subcontractor in a given single-year or multi-year budget.

TOTAL COSTS ($860,870)

University of Montana

Budget by Funding Cycle

Funding Cycle Year 1								
University of Montana								
Dec 1 2008 to Nov 30, 2009								
		Admin	**Task 1**	**Task 2**	**Task 3**	**Task 4**	**Consortium**	**Total**
PERSONNEL (3%increase each October)								
Principal Investigator	T. Seekins - Academic Year	8,637	5,772	3,036	5,772	2,020		25,237
	T. Seekins - Summer	4,296	4,296	1,290	4,296	858		15,036
Sr. Research Associate	Arnold	-	12,046	1,934	6,990	-		20,970
Epidemiologist	A. Golbeck (AY)*	-	20,874	-	-	-		20,874
	A. Golbeck (Summer)	-	13,824	-	-	-		13,824
Informatics Specialist	J. Aspevig (AY)*	-	9,864	-	-	-		9,864
	J. Aspevig (Summer)	-	5,685	-	-	-		5,685
Information Specialist	D. Spas	337	337	337	337	337		1,685
Research Proj Mgr	L. Zschaechner	907	664	664	694	694		3,623
Program Assistant	A. Lyon	928	1,616	1,616	1,158	458		5,776
Technical Support	As Needed	302	302	302	302	302		1,510
Graduate Research Assis	D. Gilbert	-	1,398	1,590	14,004	513		17,505
Graduate Research Assis	TBN; Golbeck	-	6,035	-	-	-		6,035
*May be paid extra compensation								
	Total Fac/Admin FY	-	32,920	1,934	6,990	-		41,844
	Total Fac/Admin AY	12,933	10,068	4,326	10,068	2,878		40,273
	Total Fac/Admin AY Extra Comp	-	50,247	-	-	-		50,247
	Total Classified	2,474	2,919	2,919	2,491	1,791		12,594
	Total Student Academic Year	-	5,162	1,308	11,196	372		18,038
	Total Student Summer	-	2,271	282	2,808	141		5,502
	Total Salaries	15,407	103,587	10,769	33,553	5,182		168,498
	Fringe Fac/Admin@ 31.0%	3	10,207	600	2,168	-		12,978
	Fringe Fac/Admin@ 25.0%	3,213	2,497	1,086	2,518	724		10,038
	Fringe Fac/Admin@ 20.0%	-	10,051	-	-	-		10,051
	Fringe Classified @ 27.5%	673	791	800	686	494		3,444
	Fringe graduate student @ 1%	-	51	15	108	3		177
	Fringe graduate student 13%	9	303	36	366	18		732
	Total Fringe	3,898	23,900	2,537	5,846	1,239		37,420
	Health Insurance: Dec 08 - May 09	600	1,163	457	782	250		3,252
	Health Insurance: Jun 09 - May 10	630	1,359	771	1,074	324		4,158
	Health Insurance: Jun 10- Nov 10	-	-	-	-	-		-
	Total Benefit	5,128	26,422	3,765	7,702	1,813		44,830
Total Personnel		**20,535**	**130,009**	**14,534**	**41,255**	**6,995**		**213,328**
Consortium		**-**	**-**	**-**	**-**	**-**	**192,404**	**192,404**
	State University of New York (SUNY)	-	-	-	-	-	149,430	149,430
	Tramatic Brain Injury	-	-	-	-	-	42,974	42,974

Funding Cycle Year 1								
University of Montana								
Dec 1 2008 to Nov 30, 2009								
		Admin	Task 1	Task 2	Task 3	Task 4	Consortium	Total
Travel		-	2,169	-	-	137		2,306
	Instate	-	2,169	-	-	137		2,306
	Out of State (DC trip, Buffalo trip)	-	-	-	-	-		-
Equipment		**-**	**-**	**-**	**-**	**-**		**-**
Supplies		**480**	**2,480**	**1,080**	**480**	**480**		**5,000**
	General	480	480	480	480	480		2,400
	Computer Hardware	-	2,000	600	-	-		2,600
Other		**1,108**	**1,806**	**1,428**	**4,608**	**1,632**		**10,582**
Printing & Reproduction		270	448	426	426	774		2,344
	Printing (General)	150	150	150	150	150		750
	Photcopying	120	298	276	276	624		1,594
Gen Cont Svcs		-	54	54	3,354	54		3,516
	Consultant - Disability Registries	-	-	-	3,300	-		3,300
	BFRSS questions	-	-	-	-	-		-
	Braille Services	-	54	54	54	54		216
Communications		636	636	636	636	612		3,156
	Telephone: Fixed, local	192	192	192	192	192		960
	Telephone: Long Distance	96	96	96	96	96		480
	Telephone: Conference Calls	192	192	192	192	192		960
	FAX	12	12	12	12	12		60
	Credit Card Calls	24	24	24	24	-		96
	Postage (General)	120	120	120	120	120		600
Misc Other		202	668	312	192	192		1,566
	Mtg & Conf Costs, Refreshments	144	144	144	144	144		720
	Advertising and Program Support	-	400	100	-	-		500
	Recruitment: Background Checks	-	80	20	-	-		100
	Shipping - Fed Ex	58	44	48	48	48		246
TDC Original Budget		**22,123**	**136,464**	**17,042**	**46,343**	**9,244**	**192,404**	**423,620**
Indirect Costs @ 20% of MTDC		**4,425**	**27,293**	**3,408**	**9,268**	**1,849**	**10,000**	**56,243**
Total		**26,548**	**163,757**	**20,450**	**55,611**	**11,093**	**202,404**	**479,863**

Funding Cycle Year 2								
University of Montana								
Dec 1 2009 to Nov 30, 2010								
		Admin	**Task 1**	**Task 2**	**Task 3**	**Task 4**	**Consortium**	**Total**
PERSONNEL (3%increase each October)								
Principal Investigator	T. Seekins - Academic Year	7,718	4,428	2,952	4,428	2,066		21,592
	T. Seekins - Summer	4,425	2,360	1,476	2,360	1,180		11,801
Sr. Research Associate	Arnold	-	2,275	4,557	6,832	-		13,664
Epidemiologist	A. Golbeck (AY)*	-	4,746	3,638	-	-		8,384
	A. Golbeck (Summer)	-	-	-	-	-		-
Informatics Specialist	J. Aspevig (AY)*	-	2,277	-	-	-		2,277
	J. Aspevig (Summer)	-	-	-	-	-		-
Information Specialist	D. Spas	312	312	312	312	312		1,560
Research Proj Mgr	L. Zschaechner	1,622	465	465	434	434		3,420
Program Assistant	A. Lyon	512	1,104	1,104	792	432		3,944
Technical Support	As Needed	208	208	208	208	208		1,040
Graduate Research Assis	D. Gilbert	-	1,138	964	9,336	232		11,670
Graduate Research Assis	TBN; Golbeck	-	-	-	-	-		-
*May be paid extra compensation								
	Total Fac/Admin FY	-	7,021	8,195	6,832	-		22,048
	Total Fac/Admin AY	12,143	6,788	4,428	6,788	3,246		33,393
	Total Fac/Admin AY Extra Comp	-	7,023	3,638	-	-		10,661
	Total Classified	2,654	2,089	2,089	1,746	1,386		9,964
	Total Student Academic Year	-	904	776	7,464	186		9,330
	Total Student Summer	-	234	188	1,872	46		2,340
	Total Salaries	14,797	24,059	19,314	24,702	4,864		87,736
	Fringe Fac/Admin@ 31.0%	2	2,179	2,541	2,121	-		6,843
	Fringe Fac/Admin@ 25.0%	3,039	1,700	1,110	1,700	814		8,363
	Fringe Fac/Admin@ 20.0%	-	1,404	728	-	-		2,132
	Fringe Classified @ 27.5%	741	587	575	480	382		2,765
	Fringe graduate student @ 1%	-	11	7	72	-		90
	Fringe graduate student 13%	-	-	-	-	-		-
	Total Fringe	3,782	5,881	4,961	4,373	1,196		20,193
	Health Insurance: Dec 08 - May 09	-	-	-	-	-		-
	Health Insurance: Jun 09 - May 10	527	852	986	1,169	359		3,893
	Health Insurance: Jun 10- Nov 10	711	305	298	348	153		1,815
	Total Benefit	5,020	7,038	6,245	5,890	1,708		25,901
Total Personnel		**19,817**	**31,097**	**25,559**	**30,592**	**6,572**		**113,637**
Consortium		**-**	**-**	**-**	**-**	**-**	**235,738**	**235,738**
	State University of New York (SUNY)	-	-	-	-	-	214,018	214,018
	Tramatic Brain Injury	-	-	-	-	-	21,720	21,720

Funding Cycle Year 2								
University of Montana								
Dec 1 2009 to Nov 30, 2010								
		Admin	Task 1	Task 2	Task 3	Task 4	Consortium	Total
Travel		137	-	221	362	137		857
	Instate	137	-	221	362	137		857
	Out of State (DC trip, Buffalo trip)	-	-	-	-	-		-
Equipment		**-**	**-**	**-**	**-**	**-**		**-**
Supplies		**310**	**280**	**280**	**280**	**280**		**1,430**
	General	310	280	280	280	280		1,430
	Computer Hardware	-	-	-	-	-		-
Other		**1,380**	**945**	**864**	**864**	**1,080**		**5,133**
Printing & Reproduction		755	310	288	288	520		2,161
	Printing (General)	104	104	104	104	104		520
	Photcopying	651	206	184	184	416		1,641
Gen Cont Svcs		-	99	40	40	40		219
	Consultant - Disability Registries	-	-	-	-	-		-
	BFRSS questions	-	-	-	-	-		-
	Braille Services	-	99	40	40	40		219
Communications		482	408	408	408	392		2,098
	Telephone: Fixed, local	167	128	128	128	128		679
	Telephone: Long Distance	63	48	48	48	48		255
	Telephone: Conference Calls	128	128	128	128	128		640
	FAX	8	8	8	8	8		40
	Credit Card Calls	16	16	16	16	-		64
	Postage (General)	100	80	80	80	80		420
Misc Other		143	128	128	128	128		655
	Mtg & Conf Costs, Refreshments	96	96	96	96	96		480
	Advertising and Program Support	-	-	-	-	-		-
	Recruitment: Background Checks	-	-	-	-	-		-
	Shipping - Fed Ex	47	32	32	32	32		175
TDC Original Budget		**21,644**	**32,322**	**26,924**	**32,098**	**8,069**	**235,738**	**356,795**
Indirect Costs @ 20% of MTDC		**4,329**	**6,464**	**5,385**	**6,420**	**1,614**		**24,212**
Total		**25,972**	**38,786**	**32,309**	**38,518**	**9,683**	**235,738**	**381,006**
Grand Total UM Funding Cycles Aug 1, 2008 - June 30, 2010		**52,521**	**202,543**	**52,759**	**94,129**	**20,776**	**438,142**	**860,870**

University of Montana

Budget by Federal Fiscal Year

Federal Fiscal Year 1								
University of Montana								
Dec 1 2008 to September 30, 2009								
		Admin	**Task 1**	**Task 2**	**Task 3**	**Task 4**	**Consortium**	**Total**
PERSONNEL (3%increase each October)								
Principal Investigator	T. Seekins - Academic Year	7,161	4,296	2,150	4,296	1,430		19,333
	T. Seekins - Summer	4,296	4,296	1,290	4,296	858		15,036
Sr. Research Associate	Arnold	-	10,744	632	5,688	-		17,064
Epidemiologist	A. Golbeck (AY)*	-	16,128	-	-	-		16,128
	A. Golbeck (Summer)	-	13,824	-	-	-		13,824
Informatics Specialist	J. Aspevig (AY)*	-	7,262	-	-	-		7,262
	J. Aspevig (Summer)	-	5,685	-	-	-		5,685
Information Specialist	D. Spas	259	259	259	259	259		1,295
Research Proj Mgr	L. Zschaechner	783	540	540	570	570		3,003
Program Assistant	A. Lyon	770	1,340	1,340	960	380		4,790
Technical Support	As Needed	250	250	250	250	250		1,250
Graduate Research Assis	D. Gilbert	-	1,150	1,342	11,516	389		14,397
Graduate Research Assis	TBN; Golbeck	-	4,879	-	-	-		4,879
*May be paid extra compensation								
	Total Fac/Admin FY	-	26,872	632	5,688	-		33,192
	Total Fac/Admin AY	11,457	8,592	3,440	8,592	2,288		34,369
	Total Fac/Admin AY Extra Comp	-	42,899	-	-	-		42,899
	Total Classified	2,062	2,389	2,389	2,039	1,459		10,338
	Total Student Academic Year	-	3,758	1,060	8,708	248		13,774
	Total Student Summer	-	2,271	282	2,808	141		5,502
	Total Salaries	13,519	86,781	7,803	27,835	4,136		140,074
	Fringe Fac/Admin@ 31.0%	3	8,333	196	1,764	-		10,296
	Fringe Fac/Admin@ 25.0%	2,843	2,127	864	2,148	576		8,558
	Fringe Fac/Admin@ 20.0%	-	8,581	-	-	-		8,581
	Fringe Classified @ 27.5%	559	645	654	562	402		2,822
	Fringe graduate student @ 1%	-	37	13	84	1		135
	Fringe graduate student 13%	9	303	36	366	18		732
	Total Fringe	3,414	20,026	1,763	4,924	997		31,124
	Health Insurance: Dec 08 - May 09	600	1,163	457	782	250		3,252
	Health Insurance: Jun 09 - May 10	454	1,007	447	750	216		2,874
	Health Insurance: Jun 10- Nov 10	-	-	-	-	-		-
	Total Benefit	4,468	22,196	2,667	6,456	1,463		37,250
Total Personnel		**17,987**	**108,977**	**10,470**	**34,291**	**5,599**		**177,324**
Consortium		**-**	**-**	**-**	**-**	**-**	**128,322**	**128,322**
	State University of New York (SUNY)	-	-	-	-	-	94,080	94,080
	Tramatic Brain Injury	-	-	-	-	-	34,242	34,242

Federal Fiscal Year 1								
University of Montana								
Dec 1 2008 to September 30, 2009								
		Admin	**Task 1**	**Task 2**	**Task 3**	**Task 4**	**Consortium**	**Total**
Travel		-	2,169	-	-	137		2,306
	Instate	-	2,169	-	-	137		2,306
	Out of State (DC trip, Buffalo trip)	-	-	-	-	-		-
Equipment		**-**	**-**	**-**	**-**	**-**		**-**
Supplies		**400**	**2,400**	**1,000**	**400**	**400**		**4,600**
	General	400	400	400	400	400		2,000
	Computer Hardware	-	2,000	600	-	-		2,600
Other		**930**	**1,593**	**1,215**	**3,845**	**1,365**		**8,948**
Printing & Reproduction		230	382	360	360	650		1,982
	Printing (General)	130	130	130	130	130		650
	Photcopying	100	252	230	230	520		1,332
Gen Cont Svcs		-	45	45	2,795	45		2,930
	Consultant - Disability Registries	-	-	-	2,750	-		2,750
	BFRSS questions	-	-	-	-	-		-
	Braille Services	-	45	45	45	45		180
Communications		530	530	530	530	510		2,630
	Telephone: Fixed, local	160	160	160	160	160		800
	Telephone: Long Distance	80	80	80	80	80		400
	Telephone: Conference Calls	160	160	160	160	160		800
	FAX	10	10	10	10	10		50
	Credit Card Calls	20	20	20	20	-		80
	Postage (General)	100	100	100	100	100		500
Misc Other		170	636	280	160	160		1,406
	Mtg & Conf Costs, Refreshments	120	120	120	120	120		600
	Advertising and Program Support	-	400	100	-	-		500
	Recruitment: Background Checks	-	80	20	-	-		100
	Shipping - Fed Ex	50	36	40	40	40		206
TDC Original Budget		**19,317**	**115,139**	**12,685**	**38,536**	**7,501**	**128,322**	**321,500**
Indirect Costs @ 20% of MTDC		**3,863**	**23,028**	**2,537**	**7,707**	**1,500**	**10,000**	**48,635**
Total		**23,180**	**138,167**	**15,222**	**46,243**	**9,001**	**138,322**	**370,135**

Federal Fiscal Year 2								
University of Montana								
Oct 1 2009 to September 30, 2010								
		Admin	**Task 1**	**Task 2**	**Task 3**	**Task 4**	**Consortium**	**Total**
PERSONNEL (3%increase each October)								
Principal Investigator	T. Seekins - Academic Year	7,674	5,904	3,838	5,904	2,656		25,976
	T. Seekins - Summer	4,425	2,360	1,476	2,360	1,180		11,801
Sr. Research Associate	Arnold	-	3,577	5,859	8,134	-		17,570
Epidemiologist	A. Golbeck (AY)*	-	9,492	3,638	-	-		13,130
	A. Golbeck (Summer)	-	-	-	-	-		-
Informatics Specialist	J. Aspevig (AY)*	-	4,879	-	-	-		4,879
	J. Aspevig (Summer)	-	-	-	-	-		-
Information Specialist	D. Spas	390	390	390	390	390		1,950
Research Proj Mgr	L. Zschaechner	1,426	589	589	558	558		3,720
Program Assistant	A. Lyon	670	1,380	1,380	990	510		4,930
Technical Support	As Needed	260	260	260	260	260		1,300
Graduate Research Assis	D. Gilbert	-	1,386	1,212	11,824	356		14,778
Graduate Research Assis	TBN; Golbeck	-	1,156	-	-	-		1,156
*May be paid extra compensation								
	Total Fac/Admin FY	-	13,069	9,497	8,134	-		30,700
	Total Fac/Admin AY	12,099	8,264	5,314	8,264	3,836		37,777
	Total Fac/Admin AY Extra Comp	-	14,371	3,638	-	-		18,009
	Total Classified	2,746	2,619	2,619	2,198	1,718		11,900
	Total Student Academic Year	-	2,308	1,024	9,952	310		13,594
	Total Student Summer	-	234	188	1,872	46		2,340
	Total Salaries	14,845	40,865	22,280	30,420	5,910		114,320
	Fringe Fac/Admin@ 31.0%	2	4,053	2,945	2,525	-		9,525
	Fringe Fac/Admin@ 25.0%	3,029	2,070	1,332	2,070	962		9,463
	Fringe Fac/Admin@ 20.0%	-	2,874	728	-	-		3,602
	Fringe Classified @ 27.5%	767	733	721	604	474		3,299
	Fringe graduate student @ 1%	-	25	9	96	2		132
	Fringe graduate student 13%	-	-	-	-	-		-
	Total Fringe	3,798	9,755	5,735	5,295	1,438		26,021
	Health Insurance: Dec 08 - May 09	-	-	-	-	-		-
	Health Insurance: Jun 09 - May 10	703	1,204	1,310	1,493	467		5,177
	Health Insurance: Jun 10- Nov 10	566	305	298	348	153		1,670
	Total Benefit	5,067	11,264	7,343	7,136	2,058		32,868
Total Personnel		**19,912**	**52,129**	**29,623**	**37,556**	**7,968**		**147,188**
Consortium		**-**	**-**	**-**	**-**	**-**	**299,820**	**299,820**
	State University of New York (SUNY)	-	-	-	-	-	269,368	269,368
	Tramatic Brain Injury	-	-	-	-	-	30,452	30,452

Federal Fiscal Year 2								
University of Montana								
Oct 1 2009 to September 30, 2010								
		Admin	**Task 1**	**Task 2**	**Task 3**	**Task 4**	**Consortium**	**Total**
Travel		137	-	221	362	137		857
	Instate	137	-	221	362	137		857
	Out of State (DC trip, Buffalo trip)	-	-	-	-	-		-
Equipment		**-**	**-**	**-**	**-**	**-**		**-**
Supplies		**380**	**360**	**360**	**360**	**360**		**1,820**
	General	380	360	360	360	360		1,820
	Computer Hardware	-	-	-	-	-		-
Other		**964**	**1,158**	**1,077**	**1,627**	**1,347**		**6,173**
Printing & Reproduction		244	376	354	354	644		1,972
	Printing (General)	124	124	124	124	124		620
	Photcopying	120	252	230	230	520		1,352
Gen Cont Svcs		-	108	49	599	49		805
	Consultant - Disability Registries	-	-	-	550	-		550
	BFRSS questions	-	-	-	-	-		-
	Braille Services	-	108	49	49	49		255
Communications		560	514	514	514	494		2,596
	Telephone: Fixed, local	186	160	160	160	160		826
	Telephone: Long Distance	74	64	64	64	64		330
	Telephone: Conference Calls	160	160	160	160	160		800
	FAX	10	10	10	10	10		50
	Credit Card Calls	20	20	20	20	-		80
	Postage (General)	110	100	100	100	100		510
Misc Other		160	160	160	160	160		800
	Mtg & Conf Costs, Refreshments	120	120	120	120	120		600
	Advertising and Program Support	-	-	-	-	-		-
	Recruitment: Background Checks	-	-	-	-	-		-
	Shipping - Fed Ex	40	40	40	40	40		200
TDC Original Budget		**21,393**	**53,647**	**31,281**	**39,905**	**9,812**	**299,820**	**455,858**
Indirect Costs @ 20% of MTDC		**4,279**	**10,729**	**6,256**	**7,981**	**1,963**		**31,208**
Total		**25,672**	**64,376**	**37,537**	**47,886**	**11,775**	**299,820**	**487,066**

Federal Fiscal Year 3								
University of Montana								
Oct 1 2010 to Nov 30, 2010								
		Admin	**Task 1**	**Task 2**	**Task 3**	**Task 4**	**Consortium**	**Total**
PERSONNEL (3%increase each October)								
Principal Investigator	T. Seekins - Academic Year	1,520	-	-	-	-		1,520
	T. Seekins - Summer	-	-	-	-	-		-
Sr. Research Associate	Arnold	-	-	-	-	-		-
Epidemiologist	A. Golbeck (AY)*	-	-	-	-	-		-
	A. Golbeck (Summer)	-	-	-	-	-		-
Informatics Specialist	J. Aspevig (AY)*	-	-	-	-	-		-
	J. Aspevig (Summer)	-	-	-	-	-		-
Information Specialist	D. Spas	-	-	-	-	-		-
Research Proj Mgr	L. Zschaechner	320	-	-	-	-		320
Program Assistant	A. Lyon	-	-	-	-	-		-
Technical Support	As Needed	-	-	-	-	-		-
Graduate Research Assis	D. Gilbert	-	-	-	-	-		-
Graduate Research Assis	TBN; Golbeck	-	-	-	-	-		-
*May be paid extra compensation								
	Total Fac/Admin FY	-	-	-	-	-		-
	Total Fac/Admin AY	1,520	-	-	-	-		1,520
	Total Fac/Admin AY Extra Comp	-	-	-	-	-		-
	Total Classified	320	-	-	-	-		320
	Total Student Academic Year	-	-	-	-	-		-
	Total Student Summer	-	-	-	-	-		-
	Total Salaries	1,840	-	-	-	-		1,840
	Fringe Fac/Admin@ 31.0%	-	-	-	-	-		-
	Fringe Fac/Admin@ 25.0%	380	-	-	-	-		380
	Fringe Fac/Admin@ 20.0%	-	-	-	-	-		-
	Fringe Classified @ 27.5%	88	-	-	-	-		88
	Fringe graduate student @ 1%	-	-	-	-	-		-
	Fringe graduate student 13%	-	-	-	-	-		-
	Total Fringe	468	-	-	-	-		468
	Health Insurance: Dec 08 - May 09	-	-	-	-	-		-
	Health Insurance: Jun 09 - May 10	-	-	-	-	-		-
	Health Insurance: Jun 10- Nov 10	145	-	-	-	-		145
	Total Benefit	613	-	-	-	-		613
Total Personnel		**2,453**	**-**	**-**	**-**	**-**		**2,453**
Consortium		**-**	**-**	**-**	**-**	**-**	**-**	**-**
	State University of New York (SUNY)	-	-	-	-	-	-	-
	Tramatic Brain Injury	-	-	-	-	-	-	-

Federal Fiscal Year 3								
University of Montana								
Oct 1 2010 to Nov 30, 2010								
		Admin	Task 1	Task 2	Task 3	Task 4	Consortium	Total
Travel		-	-	-	-	-		-
	Instate	-	-	-	-	-		-
	Out of State (DC trip, Buffalo trip)	-	-	-	-	-		-
Equipment		**-**	**-**	**-**	**-**	**-**		**-**
Supplies		**10**	**-**	**-**	**-**	**-**		**10**
	General	10	-	-	-	-		10
	Computer Hardware	-	-	-	-	-		-
Other		**594**	**-**	**-**	**-**	**-**		**594**
Printing & Reproduction		551	-	-	-	-		551
	Printing (General)	-	-	-	-	-		-
	Photcopying	551	-	-	-	-		551
Gen Cont Svcs		-	-	-	-	-		-
	Consultant - Disability Registries	-	-	-	-	-		-
	BFRSS questions	-	-	-	-	-		-
	Braille Services	-	-	-	-	-		-
Communications		28	-	-	-	-		28
	Telephone: Fixed, local	13	-	-	-	-		13
	Telephone: Long Distance	5	-	-	-	-		5
	Telephone: Conference Calls	-	-	-	-	-		-
	FAX	-	-	-	-	-		-
	Credit Card Calls	-	-	-	-	-		-
	Postage (General)	10	-	-	-	-		10
Misc Other		15	-	-	-	-		15
	Mtg & Conf Costs, Refreshments	-	-	-	-	-		-
	Advertising and Program Support	-	-	-	-	-		-
	Recruitment: Background Checks	-	-	-	-	-		-
	Shipping - Fed Ex	15	-	-	-	-		15
TDC Original Budget		**3,057**	**-**	**-**	**-**	**-**	**-**	**3,057**
Indirect Costs @ 20% of MTDC		**611**	**-**	**-**	**-**	**-**		**611**
Total		**3,668**	**-**	**-**	**-**	**-**	**-**	**3,668**
Grand Total Federal Fiscal Aug 1, 2008 - June 30, 2010		**52,521**	**202,543**	**52,759**	**94,129**	**20,776**	**438,142**	**860,870**

University of Montana

Budget by State Fiscal Year

State Fiscal Year 1								
University of Montana								
Dec 1 2008 to June 30, 2009								
		Admin	**Task 1**	**Task 2**	**Task 3**	**Task 4**	**Consortium**	**Total**
PERSONNEL (3%increase each October)								
Principal Investigator	T. Seekins - Academic Year	6,445	3,580	1,720	3,580	1,144		16,469
	T. Seekins - Summer	1,432	1,432	430	1,432	286		5,012
Sr. Research Associate	Arnold	-	7,584	-	3,792	-		11,376
Epidemiologist	A. Golbeck (AY)*	-	14,592	-	-	-		14,592
	A. Golbeck (Summer)	-	4,608	-	-	-		4,608
Informatics Specialist	J. Aspevig (AY)*	-	5,999	-	-	-		5,999
	J. Aspevig (Summer)	-	1,895	-	-	-		1,895
Information Specialist	D. Spas	148	148	148	148	148		740
Research Proj Mgr	L. Zschaechner	603	360	360	390	390		2,103
Program Assistant	A. Lyon	539	938	938	672	266		3,353
Technical Support	As Needed	175	175	175	175	175		875
Graduate Research Assis	D. Gilbert	-	838	1,030	8,400	233		10,501
Graduate Research Assis	TBN; Golbeck	-	3,014	-	-	-		3,014
*May be paid extra compensation								
	Total Fac/Admin FY	-	22,176	-	3,792	-		25,968
	Total Fac/Admin AY	7,877	5,012	2,150	5,012	1,430		21,481
	Total Fac/Admin AY Extra Comp	-	27,094	-	-	-		27,094
	Total Classified	1,465	1,621	1,621	1,385	979		7,071
	Total Student Academic Year	-	3,056	936	7,464	186		11,642
	Total Student Summer	-	796	94	936	47		1,873
	Total Salaries	9,342	59,755	4,801	18,589	2,642		95,129
	Fringe Fac/Admin@ 31.0%	-	6,874	-	1,176	-		8,050
	Fringe Fac/Admin@ 25.0%	1,969	1,253	540	1,253	360		5,375
	Fringe Fac/Admin@ 20.0%	-	5,419	-	-	-		5,419
	Fringe Classified @ 27.5%	394	435	444	382	270		1,925
	Fringe graduate student @ 1%	-	30	12	72	-		114
	Fringe graduate student 13%	3	106	12	122	6		249
	Total Fringe	2,366	14,117	1,008	3,005	636		21,132
	Health Insurance: Dec 08 - May 09	600	1,163	457	782	250		3,252
	Health Insurance: Jun 09 - May 10	122	277	95	196	54		744
	Health Insurance: Jun 10- Nov 10	-	-	-	-	-		-
	Total Benefit	3,088	15,557	1,560	3,983	940		25,128
Total Personnel		**12,430**	**75,312**	**6,361**	**22,572**	**3,582**		**120,257**
Consortium		**-**	**-**	**-**	**-**	**-**	**75,258**	**75,258**
	State University of New York (SUNY)	-	-	-	-	-	48,712	48,712
	Tramatic Brain Injury	-	-	-	-	-	26,546	26,546

State Fiscal Year 1								
University of Montana								
Dec 1 2008 to June 30, 2009								
		Admin	**Task 1**	**Task 2**	**Task 3**	**Task 4**	**Consortium**	**Total**
Travel		-	2,169	-	-	137		2,306
	Instate	-	2,169	-	-	137		2,306
	Out of State (DC trip, Buffalo trip)	-	-	-	-	-		-
Equipment		**-**	**-**	**-**	**-**	**-**		**-**
Supplies		**280**	**2,280**	**880**	**280**	**280**		**4,000**
	General	280	280	280	280	280		1,400
	Computer Hardware	-	2,000	600	-	-		2,600
Other		**654**	**1,263**	**885**	**2,690**	**954**		**6,446**
Printing & Reproduction		161	274	252	252	455		1,394
	Printing (General)	91	91	91	91	91		455
	Photcopying	70	183	161	161	364		939
Gen Cont Svcs		-	30	30	1,955	30		2,045
	Consultant - Disability Registries	-	-	-	1,925	-		1,925
	BFRSS questions	-	-	-	-	-		-
	Braille Services	-	30	30	30	30		120
Communications		371	371	371	371	357		1,841
	Telephone: Fixed, local	112	112	112	112	112		560
	Telephone: Long Distance	56	56	56	56	56		280
	Telephone: Conference Calls	112	112	112	112	112		560
	FAX	7	7	7	7	7		35
	Credit Card Calls	14	14	14	14	-		56
	Postage (General)	70	70	70	70	70		350
Misc Other		122	588	232	112	112		1,166
	Mtg & Conf Costs, Refreshments	84	84	84	84	84		420
	Advertising and Program Support	-	400	100	-	-		500
	Recruitment: Background Checks	-	80	20	-	-		100
	Shipping - Fed Ex	38	24	28	28	28		146
TDC Original Budget		**13,364**	**81,024**	**8,126**	**25,542**	**4,953**	**75,258**	**208,267**
Indirect Costs @ 20% of MTDC		**2,673**	**16,204**	**1,625**	**5,108**	**991**	**10,000**	**36,602**
Total		**16,037**	**97,228**	**9,751**	**30,650**	**5,944**	**85,258**	**244,869**

State Fiscal Year 2								
University of Montana								
July 1 2009 to June 30, 2010								
		Admin	Task 1	Task 2	Task 3	Task 4	Consortium	Total
PERSONNEL (3%increase each October)								
Principal Investigator	T. Seekins - Academic Year	6,915	6,620	4,268	6,620	2,942		27,365
	T. Seekins - Summer	4,339	4,044	1,598	4,044	1,162		15,187
Sr. Research Associate	Arnold	-	6,737	6,491	10,030	-		23,258
Epidemiologist	A. Golbeck (AY)*	-	11,028	3,638	-	-		14,666
	A. Golbeck (Summer)	-	9,216	-	-	-		9,216
Informatics Specialist	J. Aspevig (AY)*	-	6,142	-	-	-		6,142
	J. Aspevig (Summer)	-	3,790	-	-	-		3,790
Information Specialist	D. Spas	462	462	462	462	462		2,310
Research Proj Mgr	L. Zschaechner	862	738	738	676	676		3,690
Program Assistant	A. Lyon	842	1,644	1,644	1,179	565		5,874
Technical Support	As Needed	309	309	309	309	309		1,545
Graduate Research Assis	D. Gilbert	-	1,581	1,430	14,004	489		17,504
Graduate Research Assis	TBN; Golbeck	-	3,021	-	-	-		3,021
*May be paid extra compensation								
	Total Fac/Admin FY	-	17,765	10,129	10,030	-		37,924
	Total Fac/Admin AY	11,254	10,664	5,866	10,664	4,104		42,552
	Total Fac/Admin AY Extra Comp	-	30,176	3,638	-	-		33,814
	Total Classified	2,475	3,153	3,153	2,626	2,012		13,419
	Total Student Academic Year	-	3,010	1,148	11,196	372		15,726
	Total Student Summer	-	1,592	282	2,808	117		4,799
	Total Salaries	13,729	66,360	24,216	37,324	6,605		148,234
	Fringe Fac/Admin@ 31.0%	5	5,512	3,141	3,113	-		11,771
	Fringe Fac/Admin@ 25.0%	2,796	2,649	1,471	2,670	1,030		10,616
	Fringe Fac/Admin@ 20.0%	-	6,036	728	-	-		6,764
	Fringe Classified @ 27.5%	694	879	867	722	555		3,717
	Fringe graduate student @ 1%	-	32	10	108	3		153
	Fringe graduate student 13%	6	197	24	244	12		483
	Total Fringe	3,501	15,305	6,241	6,857	1,600		33,504
	Health Insurance: Dec 08 - May 09	-	-	-	-	-		-
	Health Insurance: Jun 09 - May 10	1,035	1,934	1,662	2,047	629		7,307
	Health Insurance: Jun 10- Nov 10	138	174	189	225	73		799
	Total Benefit	4,674	17,413	8,092	9,129	2,302		41,610
Total Personnel		**18,403**	**83,773**	**32,308**	**46,453**	**8,907**		**189,844**
Consortium		**-**	**-**	**-**	**-**	**-**	**352,884**	**352,884**
	State University of New York (SUNY)	-	-	-	-	-	314,736	314,736
	Tramatic Brain Injury	-	-	-	-	-	38,148	38,148

State Fiscal Year 2								
University of Montana								
July 1 2009 to June 30, 2010								
		Admin	Task 1	Task 2	Task 3	Task 4	Consortium	Total
Travel		-	-	221	362	137		720
	Instate	-	-	221	362	137		720
	Out of State (DC trip, Buffalo trip)	-	-	-	-	-		-
Equipment		**-**	**-**	**-**	**-**	**-**		**-**
Supplies		**460**	**460**	**460**	**460**	**460**		**2,300**
	General	460	460	460	460	460		2,300
	Computer Hardware	-	-	-	-	-		-
Other		**1,084**	**1,321**	**1,299**	**2,674**	**1,623**		**8,001**
Printing & Reproduction		270	448	426	426	774		2,344
	Printing (General)	150	150	150	150	150		750
	Photcopying	120	298	276	276	624		1,594
Gen Cont Svcs		-	59	59	1,434	59		1,611
	Consultant - Disability Registries	-	-	-	1,375	-		1,375
	BFRSS questions	-	-	-	-	-		-
	Braille Services	-	59	59	59	59		236
Communications		622	622	622	622	598		3,086
	Telephone: Fixed, local	192	192	192	192	192		960
	Telephone: Long Distance	82	82	82	82	82		410
	Telephone: Conference Calls	192	192	192	192	192		960
	FAX	12	12	12	12	12		60
	Credit Card Calls	24	24	24	24	-		96
	Postage (General)	120	120	120	120	120		600
Misc Other		192	192	192	192	192		960
	Mtg & Conf Costs, Refreshments	144	144	144	144	144		720
	Advertising and Program Support	-	-	-	-	-		-
	Recruitment: Background Checks	-	-	-	-	-		-
	Shipping - Fed Ex	48	48	48	48	48		240
TDC Original Budget		**19,947**	**85,554**	**34,288**	**49,949**	**11,127**	**352,884**	**553,749**
Indirect Costs @ 20% of MTDC		**3,989**	**17,111**	**6,858**	**9,990**	**2,225**		**40,173**
Total		**23,936**	**102,665**	**41,146**	**59,939**	**13,352**	**352,884**	**593,922**

State Fiscal Year 3								
University of Montana								
July 1 2010 to Nov 30, 2010								
		Admin	Task 1	Task 2	Task 3	Task 4	Consortium	Total
PERSONNEL (3%increase each October)								
Principal Investigator	T. Seekins - Academic Year	2,995	-	-	-	-		2,995
	T. Seekins - Summer	2,950	1,180	738	1,180	590		6,638
Sr. Research Associate	Arnold	-	-	-	-	-		-
Epidemiologist	A. Golbeck (AY)*	-	-	-	-	-		-
	A. Golbeck (Summer)	-	-	-	-	-		-
Informatics Specialist	J. Aspevig (AY)*	-	-	-	-	-		-
	J. Aspevig (Summer)	-	-	-	-	-		-
Information Specialist	D. Spas	39	39	39	39	39		195
Research Proj Mgr	L. Zschaechner	1,064	31	31	62	62		1,250
Program Assistant	A. Lyon	59	138	138	99	59		493
Technical Support	As Needed	26	26	26	26	26		130
Graduate Research Assis	D. Gilbert	-	117	94	936	23		1,170
Graduate Research Assis	TBN; Golbeck	-	-	-	-	-		-
*May be paid extra compensation								
	Total Fac/Admin FY	-	-	-	-	-		-
	Total Fac/Admin AY	5,945	1,180	738	1,180	590		9,633
	Total Fac/Admin AY Extra Comp	-	-	-	-	-		-
	Total Classified	1,188	234	234	226	186		2,068
	Total Student Academic Year	-	-	-	-	-		-
	Total Student Summer	-	117	94	936	23		1,170
	Total Salaries	7,133	1,531	1,066	2,342	799		12,871
	Fringe Fac/Admin@ 31.0%	-	-	-	-	-		-
	Fringe Fac/Admin@ 25.0%	1,487	295	185	295	148		2,410
	Fringe Fac/Admin@ 20.0%	-	-	-	-	-		-
	Fringe Classified @ 27.5%	326	64	64	62	51		567
	Fringe graduate student @ 1%	-	-	-	-	-		-
	Fringe graduate student 13%	-	-	-	-	-		-
	Total Fringe	1,813	359	249	357	199		2,977
	Health Insurance: Dec 08 - May 09	-	-	-	-	-		-
	Health Insurance: Jun 09 - May 10	-	-	-	-	-		-
	Health Insurance: Jun 10- Nov 10	573	131	109	123	80		1,016
	Total Benefit	2,386	490	358	480	279		3,993
Total Personnel		**9,519**	**2,021**	**1,424**	**2,822**	**1,078**		**16,864**
Consortium		**-**	**-**	**-**	**-**	**-**	**-**	**-**
	State University of New York (SUNY)	-	-	-	-	-	-	-
	Tramatic Brain Injury	-	-	-	-	-	-	-

State Fiscal Year 3								
University of Montana								
July 1 2010 to Nov 30, 2010								
		Admin	**Task 1**	**Task 2**	**Task 3**	**Task 4**	**Consortium**	**Total**
Travel		137	-	-	-	-		137
	Instate	137	-	-	-	-		137
	Out of State (DC trip, Buffalo trip)	-	-	-	-	-		-
Equipment		**-**	**-**	**-**	**-**	**-**		**-**
Supplies		**50**	**20**	**20**	**20**	**20**		**130**
	General	50	20	20	20	20		130
	Computer Hardware	-	-	-	-	-		-
Other		**750**	**167**	**108**	**108**	**135**		**1,268**
Printing & Reproduction		594	36	36	36	65		767
	Printing (General)	13	13	13	13	13		65
	Photcopying	581	23	23	23	52		702
Gen Cont Svcs		-	64	5	5	5		79
	Consultant - Disability Registries	-	-	-	-	-		-
	BFRSS questions	-	-	-	-	-		-
	Braille Services	-	64	5	5	5		79
Communications		125	51	51	51	49		327
	Telephone: Fixed, local	55	16	16	16	16		119
	Telephone: Long Distance	21	6	6	6	6		45
	Telephone: Conference Calls	16	16	16	16	16		80
	FAX	1	1	1	1	1		5
	Credit Card Calls	2	2	2	2	-		8
	Postage (General)	30	10	10	10	10		70
Misc Other		31	16	16	16	16		95
	Mtg & Conf Costs, Refreshments	12	12	12	12	12		60
	Advertising and Program Support	-	-	-	-	-		-
	Recruitment: Background Checks	-	-	-	-	-		-
	Shipping - Fed Ex	19	4	4	4	4		35
TDC Original Budget		**10,456**	**2,208**	**1,552**	**2,950**	**1,233**	**-**	**18,399**
Indirect Costs @ 20% of MTDC		**2,091**	**442**	**310**	**590**	**247**		**3,680**
Total		**12,547**	**2,650**	**1,862**	**3,540**	**1,480**	**-**	**22,079**
Grand Total State Fiscal Aug 1, 2008 - June 30, 2010		**52,521**	**202,543**	**52,759**	**94,129**	**20,776**	**438,142**	**860,870**

University of Montana

Travel Detail

University of Montana Travel Detail												
Travel	Miles RT		Miles RT	Lodgin	erDie	Misc	Sedan	PerMile				
Helena/Missoula			226	67	23	10	12	0.35				
Great Falls/Missoula			336	60	23	10	12	0.35				
Billings/Missoula			690	60	23	10	12	0.35				
Bozeman/Missoula			404	90	23	10	12	0.35				
Butte/ Helena			140	60	23	10	12	0.35				
Butte/ Missoula			240	90	23	10	12	0.35				
	Purpose	Origin	Destination	# Days	Peop	# Night	Per Diem	MP		Month	Year	Est $
Admin												
	Meet with MDOT (Seekins)	Missoula	Helena	1	2		23	12	79	July	2010	137
Task 1												
	Meet with MDOT, J DeTiene (Seekins, Golbeck)	Missoula	Helena	1	2		23	12	79	Jan	2009	137
	Meet with J DeTiene (Golbeck)	Missoula	Helena	1	1		23	12	79	Feb	2009	114
	Meet with J. Detiene (Aspevig)	Butte	Helena	1	1		23	12	49	Feb	2009	84
	Meet with Nels Sandal (Golbeck,Aspevig; via Butte)	Missoula	Bozeman	1	2		23	12	141	Feb	2009	199
	Meet with Missoula Team (Aspevig)	Butte	Missoula	1	1		23	12	84	Feb	2009	119
	Meet with Highway Patrol/PSAP (Golbeck)	Missoula	Helena	1	1		23	12	79	Mar	2009	114
	Meet with Highway Patrol/PSAP (Aspevig)	Butte	Helena	1	1		23	12	49	Mar	2009	84
	Meet with IHS (Golbeck, Aspevig; via Butte)	Missoula	Billings	2	2	1	23	12	242	Mar	2009	486
	Meet with Missoula Team (Aspevig)	Butte	Missoula	1	1		23	12	84	Mar	2009	119
	Meet with TBD (Golbeck)	Missoula	Helena	1	1		23	12	79	Apr	2009	114
	Meet with TBD (Aspevig)	Butte	Helena	1	1		23	12	49	Apr	2009	84
	Meet with Missoula Team	Butte	Missoula	1	1		23	12	84	Apr	2009	119
	Meet with TBD (Golbeck)	Missoula	Helena	1	1		23	12	79	May	2009	114
	Meet with TBD (Aspevig)	Butte	Helena	1	1		23	12	49	May	2009	84
	Meet with TBD (Golbeck)	Missoula	Helena	1	1		23	12	79	Jun	2009	114
	Meet with TBD (Aspevig)	Butte	Helena	1	1		23	12	49	Jun	2009	84

Task 2												
	Meet with MDOT (Seekins, Golbeck)	Missoula	Helena	1	2		23	12	79	Dec	2009	137
	Meet with MDOT (Aspevig)	Butte	Helena	1	1		23	12	49	Dec	2009	84
Task 3												
	BIAMT (Seekins, GRA)		Great Falls	2	2	1	23	12	118	Mar	2010	362
Task 4												
	Meet with STC (Seekins, Golbeck)		Helena	1	2		23	12	79	Mar	2009	137
	Meet with STC (Seekins, Golbeck)		Helena	1	2		23	12	79	Mar	2010	137

CUBRC

Via email: ruraldoc@ruralinstitute.umt.edu

June 20, 2008
AML08-037

Dr. Thomas Seekins
The University of Montana Rural Institute
52 Corbin Hall
Missoula, MT 59812

Subject: CUBRC Proposal No. 9114a
MT ACN Program (Revised)

Enclosures: Draft Statement of Work date 6/19/08
Work Plan
Cost Schedule

Dear Dr. Seekins:

CUBRC is very pleased to submit this Cost Proposal No. 9114a to support the University of Montana's Rural Institute in developing possible solutions to upgrade the State of Montana's current motor vehicle crash data infrastructure and to research the effective use of Automatic Crash Notification (ACN) systems in the State.

Attached please find a draft Statement of Work outlining CUBRC's proposed role in the overall project as well as a work plan (schedule). Also attached are cost tables presented in the three formats requested:

1- Funding cycle calendar
   Year 1: Aug 1, 2008 thru July 31, 2009
   Year 2: Aug 1, 2009 thru Mar 31, 2010
2- Federal fiscal: Oct 1 – Sept 30
3- State fiscal: Jul 1- Jun 30

We estimate the cost for this effort as $352,778. For authorization to proceed, we would accept a Cost-Plus-Fixed-Fee contract with mutually agreed upon terms and conditions. This proposal, as submitted, remains firm for sixty (60) days.

Should additional technical information be needed, please contact Mr. Alan Blatt by telephone at 716-204-5138 or by email at Blatt@cubrc.org or Ms. Marie Flanigan by telephone at 716-204-5141 or by email at Flanigan@cubrc.org. Questions of an administrative or contractual nature should be directed to Mr. Kevin W. Leous by telephone at 716-204-5137 or by email at Leous@cubrc.org or to me by telephone at 716-204-5124 or by email at Lyte@cubrc.org.

Regards,
CUBRC, Inc.

Andel Lyte
Contract Administrator

4455 Genesee Street, Buffalo, NY 14225
Phone 716-204-5100 Fax 716-204-5448
www.cubrc.org

COST METHODOLOGY
CUBRC PROPOSAL 9114R10.10.2008

General

The mission of CUBRC is to bring together scientists and engineers from academia and industry to expand the research capabilities of all and to provide significant technological and economic growth opportunities in Western New York. CUBRC was incorporated in New York State in 1983, as an independent, not-for-profit, multidisciplinary research center.

CUBRC is structured to facilitate the pursuit and performance of research, development, testing and systems integration projects using its own broad technical resources and those of its teaming partners including personnel, unique facilities and equipment. CUBRC performs fundamental and unrestricted research under contract and grants in the areas of Public Health and Safety, Information Exploitation, Aeronautics, Chemical and Biological Systems, Unified Biometrics and Biomedical Sciences for industrial, commercial and government agencies serving the Nation's Defense, Intelligence, and Response communities.

The cost principles of OMB Circular A-122, Cost Principles for Nonprofit Organizations, and OMB Circular A-133, Audits of Institutions of Higher Education and Other Nonprofit Organizations, apply to CUBRC programs.

Direct Labor

CUBRC staff comprises professional, technical, and administrative personnel obtained on an assignment basis from the Research Foundation of the State University of New York at Buffalo and other corporate/private sources. Some support personnel are also obtained from temporary employment agencies.

Fringe

The personnel policies, procedures, and benefits (fringe) of the applicable organization apply to employees assigned to CUBRC projects. The fringe rate for CUBRC professional and technical labor leased through the Research Foundation of SUNY is 56%.

Travel

Travel is estimated in accordance with the Federal Travel Regulations (FTR). CUBRC uses the FTR as an estimating methodology, but costs will be charged according to provisions of OMB Circular A-122, Cost Principles for Nonprofit Organizations. Proposed airfares are based on on-line inquiries. Where practical, the lowest available fares have been used, e.g., 14-day advance, non-refundable. A detailed listing of travel is provided in the attached sheets.

Indirect Costs

Indirect Costs represent various costs necessary for the routine and normal operation of a business that pertain to the business as a whole and cannot be clearly and solely assigned to a specific contract. These costs are distributed over a base that is homogenous with those costs. In this manner, each contract absorbs its proportionate share of overhead expenses.

CUBRC has a professional, technical indirect expense (PTE) rate of 45.1%. This indirect rate is applied to the CUBRC professional and technical staff supporting various programs. These include costs that are clearly and solely assignable to the technical staff, such as technical conferences, computer equipment, space rental, etc.

CUBRC's General and Administrative expense (G&A) rate includes management and operating expenses. This indirect rate includes costs associated with independent research and development, bid and proposal expense, program development activities, contract management, pricing and analysis, finance and accounting, and general administration. An indirect G&A rate of 9.5% is applied to all direct costs of the program as well as to the professional, technical indirect expense.

These rates have been developed in accordance with Government Cost Accounting Standards and applicable OMB Circulars, and have been approved by our cognizant DCAA and ACO offices.

Cost Sharing
No cost sharing is proposed for this effort.

Fee
While CUBRC is an independent, not-for-profit corporation, this does not preclude the application of fee to our programs. What it does preclude is that the fee is used as "profit" to benefit shareholders. Instead, all fees earned are put back into the company for capital investments, business expenses, and growth opportunities. We have proposed a fee of 10% for this effort.

Contract Type
Our cost estimate is based on the award of a cost-plus-fixed-fee contract. This proposal reflects our current bid rates which may vary from the billing rates. All invoicing will be calculated at actual rates incurred, and approved by our cognizant government audit agency.

Cognizant Government Offices
CUBRC bid and proposal rates are audited by the Defense Contract Management Agency and the Defense Contract Audit Agency. These cognizant agencies are identified below:

Government Contract Administration Office
Defense Contract Management Agency (DCMA)
Niagara Center, Suite 340
130 South Elmwood Avenue
Buffalo, NY 14202-2392

Attn: Mr. Michael O'Conner, Administrative Contracting Officer
Telephone: (716) 551-4761
Telefax: (716) 551-4531
E-mail: Michael.Oconnor@dcma.mil

Cognizant Government Audit Office
Defense Contract Audit Agency (DCAA)
Great Lakes Branch Office
General Dynamics Suboffice
PO Box 400
Buffalo, NY 14225
Attn: Ms. Sheri Stone, Supervisory Auditor
Telephone: (716) 631-6910
Telefax: (716) 631-4133
E-mail: Sheri.stone@dcaa.mil

MT ACN OVERALL PERT CHART (Dec 2008 – July 2010) **CUBRC Schedule** (Revised 10-07-08)

2008 /---------- ---------- 2009 ---------- / ---------- 2010 ------

	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J
Administration																				
1. Establish contracts	x	x	x																	
2. Hire staff	x	x																		
3. Quarterly meetings and reports				x			x			x			x			x			x	
4. Close out and final report																				x
TASK 1: Characterize Montana's current motor vehicle-crash emergency response, medical, and rehabilitation data infrastructure																				
1. Identify agencies		x	x	x																
a. Design interview survey			x	x	x															
b. Conduct interviews				x	x	x	x	x	x											
2. Develop tools, procedures to summarize data. Document data systems.					x	x	x	x	x	x										
3. Characterize existing data infrastructure (data flow, protocols, data sharing, etc.)						x	x	x	x	x	x									
4. Analyze content							x	x	x	x	x	x	x	x						
a. Develop requirements for upgrade (including integrating ACN/AACN)									x	x	x	x	x	x	x					
5. Draft report															x	x				
TASK 2: Develop detailed plan for upgrading crash data infrastructure																				
1. Define modifications										x	x	x	x	x	x					
2. Document design modifications											x	x	x	x	x	x	x			
3. Demonstrate utility of modifications													x	x	x	x	x	x	x	
TASK 3: Expand MTBIA registry and resource facilitation program and assess potential for integrating it into the Montana Trauma System																				
1. Recruit 8 new hospitals			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
2. Assess capacity to expand to other injuries													x	x	x	x				
3. Explore triage protocol														x	x	x	x	x		
TASK 4: Increase participation of disability and medical rehabilitation providers in the Trauma Systems																				
1. Attend and participate in State TAC						x												x		
2. Attend and participate in Regional TACs									x			x			x					

Yellow highlighting indicates schedule for CUBRC tasks in context of full program schedule.

CUBRC Draft SOW
MT ACN Project
October 7, 2008

Task 1 (~33% of CUBRC Effort)

Project SubTasks as Defined in University of MT proposal

Subtask 1: Identify agencies/orgs who collect, analyze & use crash-related data. Design interview survey; conduct interviews
Subtask 2: Develop tools & procedures to summarize data systems from each agency (metadata). Document data systems & data dictionaries.
Subtask 3: Document the protocol for collecting, analyzing, reporting, archiving, and sharing data, including legal requirements and limitations.
Subtask 4: Analyze content and identify requirements for upgraded data infrastructure (incl ACN)

Sub Task	Cost Est %	# Trips (Persons)	CUBRC Role on SubTask	Deliverable*	Estimated Period of Activity
1.1	6%	1 (2) Helena	CUBRC staff will travel to Montana for discussions with stakeholders. Based on experience in other states and regions, CUBRC will provide the MT-based data coordinator (new hire) with a listing of suggested sources for traditional crash-related data. CUBRC will also review draft interview survey tool (developed by data coordinator) and provide feedback on content, scope and clarity.	TechNote 1	1/09 - 5/09
1.2	6%		After the data coordinator completes the first round of interviews and compiles a summary of the data dictionaries and documentation currently available for existing crash/injury/rehab datasets, CUBRC will review these compilations, suggest any needs for clarification/follow-up, and make recommendations for revisions to interview survey (if necessary) before the next round of interviews. In collaboration with the University of Montana, CUBRC will help select and define tools and procedures to document the data systems (i.e., metadata design) so that a workable framework is defined for summarizing the baseline data infrastructure.	TechNote 2	4/09 – 9/09
1.4	21%	1 (2) Missoula	Once interviews are completed and draft profiles defining Montana's existing crash/injury/rehab data sets are compiled by the data coordinator (including the temporal and organizational flow for each), CUBRC will support the University of Montana in analyzing the current data infrastructure framework. Observations on current data infrastructure will be summarized.	TechNote 3	6/09 – 2/10
			CUBRC will provide technical inputs to draft requirements for an upgraded crash data infrastructure. These requirements will be structured to accommodate current and future expanded use of ACN/AACN-related data as well as support future crash-related research activities. Consideration will also be given to functional requirements which might be expected to enhance future emergency, medical, and rehabilitation response. CUBRC will support the writing and review of the document summarizing these requirements.	TechNote 4	

* CUBRC support activities on Task 1 will be summarized in the indicated TechNotes to Dr. Tom Seekins at the University of Montana

Task 2: (~67% **of CUBRC Effort)**

Project SubTasks as Defined in University of MT proposal

Subtask 1: Define modifications to existing crash data infrastructure.
Subtask 2: Document design including expected approach for prospective data collection and integration.
Subtask 3: Demonstrate utility of selected infrastructure modifications

Sub Task	Cost $	# Trips (Persons)	CUBRC Role on SubTask	Deliverable*	Estimated Period of Activity
2.1	33%	1 (2) Detroit (OnStar)	Based on (stake-holder approved) requirements developed in Task 1 and considering related national initiatives, CUBRC will work with our University of MT partners to define/recommend modifications to upgrade the existing crash data infrastructure. In particular, CUBRC will identify and document how ACN and AACN data can best be captured and integrated into MT's upgraded crash data infrastructure.	TechNote 5	9/09 – 2/10
2.2	6%		Results of these activities will be (jointly) documented in the Crash Data Infrastructure Modification Plan. This plan will describe the upgraded infrastructure design as well as expected approach for prospective data collection and integration. CUBRC will support writing / reviewing modification plan as required. (Crash Data Infrastructure Modification Plan.)		10/09 – 4/10
2.3	28%	1 (2) Missoula	CUBRC will also examine and document how ACN and AACN telemetry data might be received and utilized in real time operational response in Montana. In support of this activity, CUBRC will identify: a. Potential additional recipients of ACN/AACN alerts (after PSAP). b. Specific data & instructions which should be sent to each location. c. Possible supporting analysis and display tools so that the data it is actionable in real time. d. Hardware and software improvements required at the receiving locations. e. Required modifications to existing protocols and procedures followed by these recipients. f. Impediments to implementation of the infrastructure modifications.	TechNote 6	12/09 – 6/10
		1 (2) Helena	Using representative or prototype data, CUBRC will develop a briefing to demonstrate the utility of selected crash data infrastructure modifications (including use of newly added vehicle telemetry and disability measure data.) The briefing will illustrate the nature of the expanded information which will be available on the continuum of care received by crash victims - from the time of the crash event through rehabilitation and community integration. (Briefing)	Briefing	

* CUBRC support activities on Task 2 will be summarized in the indicated TechNotes to Dr. Tom Seekins at the University of Montana

CUBRC

Budget by Funding Cycle

CUBRC									
Proposal 9114R10.10.2008									
Funding Cycle Year									
December 2008 - November 2009		Task 1.1	Task 1.2	Task 1.3	Task 1.4	Task 2.1	Task 2.2	Task 2.3	
		Budget	Budget	Budget	Budget	Budget	Budget	Budget	Total
PERSONNEL		**15,021**	**18,499**	**-**	**40,466**	**38,272**	**2,422**	**-**	**114,680**
Co-Principal Investigator, Task Leader	M. Flanigan	2,254	4,058	-	6,989	5,636	451	-	19,388
Co-Principal Investigator, Task Leader	A. Blatt	3,095	2,786	-	7,815	6,500	619	-	20,815
Data/GIS Analyst	K. Majka	-	1,329	-	2,301	1,556	-	-	5,186
Database/Software Design	J. Del Vecchio	-	-	-	-	1,158	-	-	1,158
Data/Information Analyst	M. Miller	1,286	-	-	772	2,058	-	-	4,117
	Total Fac/Admin FY	6,636	8,173	-	17,877	16,908	1,070	-	50,664
	Total Salaries	**6,636**	**8,173**	**-**	**17,877**	**16,908**	**1,070**	**-**	**50,664**
	Fringe Fac/Admin@ 56%	3,716	4,577	-	10,011	9,468	599	-	28,372
	PTE @ 45.1%	4,669	5,750	-	12,578	11,896	753	-	35,645
	Total Fringe & PTE	8,385	10,327	-	22,589	21,364	1,352	-	64,017
Consortium		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-	-	-	-	-	-	-	-
Travel		**3,755**	**-**	**-**	**3,596**	**2,028**	**-**	**-**	**9,379**
	Instate	-	-	-	-	-	-	-	-
	Out of State	3,755	-	-	3,596	2,028	-	-	9,379
Equipment		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-	-	-	-	-	-	-	-
Supplies		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-	-	-	-	-	-	-	-
Other		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-	**-**	**-**	**-**	**-**	**-**	**-**	-
TDC Original Budget		**18,776**	**18,499**	**-**	**44,062**	**40,300**	**2,422**	**-**	**124,059**
Indirect Costs @ 9.5% of TDC		**1,784**	**1,757**	**-**	**4,186**	**3,828**	**230**	**-**	**11,786**
Fee @ 10%		**2,056**	**2,026**	**-**	**4,825**	**4,413**	**265**	**-**	**13,585**
Total		**22,616**	**22,282**	**-**	**53,073**	**48,541**	**2,917**	**-**	**149,430**

CUBRC									
Proposal 9114R10.10.2008									
Funding Cycle Year									
December 2009 - November 2010		Task 1.1	Task 1.2	Task 1.3	Task 1.4	Task 2.1	Task 2.2	Task 2.3	
		Budget	Budget	Budget	Budget	Budget	Budget	Budget	Total
PERSONNEL		**-**	**-**	**-**	**17,232**	**59,704**	**14,785**	**78,610**	**170,331**
Co-Principal Investigator, Task Leader	M. Flanigan	-	-	-	2,578	8,792	1,898	9,532	22,800
Co-Principal Investigator, Task Leader	A. Blatt	-	-	-	3,621	10,140	2,606	13,087	29,454
Data/GIS Analyst	K. Majka	-	-	-	876	2,427	679	2,749	6,731
Database/Software Design	J. Del Vecchio	-	-	-	-	1,806	-	4,589	6,395
Data/Information Analyst	M. Miller	-	-	-	538	3,211	1,348	4,773	9,869
	Total Fac/Admin FY	-	-	-	7,613	26,376	6,532	34,728	75,249
	Total Salaries	**-**	**-**	**-**	**7,613**	**26,376**	**6,532**	**34,728**	**75,249**
	Fringe Fac/Admin@ 56.0%	-	-	-	4,263	14,771	3,658	19,448	42,140
	PTE @ 45.1%	-	-	-	5,356	18,557	4,596	24,433	52,942
	Total Fringe & PTE	-	-	-	9,619	33,328	8,254	43,881	95,082
Consortium		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-	-	-	-	-	-	-	-
Travel		**-**	**-**	**-**	**-**	**-**	**-**	**7,351**	**7,351**
	Instate	-	-	-	-	-	-	-	-
	Out of State	-	-	-	-	-	-	7,351	7,351
Equipment		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-	-	-	-	-	-	-	-
Supplies		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-	-	-	-	-	-	-	-
Other		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-	**-**	**-**	**-**	**-**	**-**	**-**	-
TDC Original Budget		**-**	**-**	**-**	**17,232**	**59,704**	**14,785**	**85,961**	**177,682**
Indirect Costs @ 9.5% of TDC		**-**	**-**	**-**	**1,637**	**5,672**	**1,405**	**8,166**	**16,880**
Fee @ 10%		**-**	**-**	**-**	**1,887**	**6,538**	**1,619**	**9,413**	**19,456**
Total		**-**	**-**	**-**	**20,756**	**71,914**	**17,809**	**103,540**	**214,018**
GRAND TOTAL		**22,616**	**22,282**	**-**	**73,829**	**120,455**	**20,726**	**103,540**	**363,448**

CUBRC

Budget by Federal Fiscal Year

CUBRC									
Proposal 9114R10.10.2008									
Federal Fiscal Year									
December 2008 - September 2009		Task 1.1	Task 1.2	Task 1.3	Task 1.4	Task 2.1	Task 2.2	Task 2.3	
		Budget	Budget	Budget	Budget	Budget	Budget	Budget	Total
PERSONNEL		**15,021**	**18,499**	**-**	**27,460**	**7,748**	**-**	**-**	**68,729**
Co-Principal Investigator, Task Leader	M. Flanigan	2,254	4,058	-	4,734	1,409	-	-	12,456
Co-Principal Investigator, Task Leader	A. Blatt	3,095	2,786	-	5,262	1,625	-	-	12,768
Data/GIS Analyst	K. Majka	-	1,329	-	1,621	389	-	-	3,339
Database/Software Design	J. Del Vecchio	-	-	-	-	-	-	-	-
Data/Information Analyst	M. Miller	1,286	-	-	515	-	-	-	1,801
	Total Fac/Admin FY	6,636	8,173	-	12,131	3,423	-	-	30,363
	Total Salaries	**6,636**	**8,173**	**-**	**12,131**	**3,423**	**-**	**-**	**30,363**
	Fringe Fac/Admin@ 56%	3,716	4,577	-	6,794	1,917	-	-	17,003
	PTE @ 45.1%	4,669	5,750	-	8,535	2,408	-	-	21,362
	Total Fringe & PTE	8,385	10,327	-	15,329	4,325	-	-	38,365
Consortium		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-	-	-	-	-	-	-	-
Travel		**3,755**	**-**	**-**	**3,596**	**2,028**	**-**	**-**	**9,379**
	Instate	-	-	-	-	-	-	-	-
	Out of State	3,755	-	-	3,596	2,028	-	-	9,379
Equipment		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-	-	-	-	-	-	-	-
Supplies		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-	-	-	-	-	-	-	-
Other		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-	**-**	**-**	**-**	**-**	**-**	**-**	-
TDC Original Budget		**18,776**	**18,499**	**-**	**31,056**	**9,776**	**-**	**-**	**78,108**
Indirect Costs @ 9.5% of TDC		**1,784**	**1,757**	**-**	**2,950**	**929**	**-**	**-**	**7,420**
Fee @ 10%		**2,056**	**2,026**	**-**	**3,401**	**1,070**	**-**	**-**	**8,553**
Total		**22,616**	**22,282**	**-**	**37,407**	**11,775**	**-**	**-**	**94,080**

CUBRC									
Proposal 9114R10.10.2008									
Federal Fiscal Year									
October 2009 - September 2010		Task 1.1	Task 1.2	Task 1.3	Task 1.4	Task 2.1	Task 2.2	Task 2.3	
		Budget	Budget	Budget	Budget	Budget	Budget	Budget	Total
PERSONNEL		**-**	**-**	**-**	**30,238**	**90,228**	**17,207**	**78,610**	**216,283**
Co-Principal Investigator, Task Leader	M. Flanigan	-	-	-	4,832	13,019	2,349	9,532	29,732
Co-Principal Investigator, Task Leader	A. Blatt	-	-	-	6,175	15,015	3,225	13,087	37,501
Data/GIS Analyst	K. Majka	-	-	-	1,557	3,594	679	2,749	8,579
Database/Software Design	J. Del Vecchio	-	-	-	-	2,964	-	4,589	7,552
Data/Information Analyst	M. Miller	-	-	-	795	5,269	1,348	4,773	12,185
	Total Fac/Admin FY	-	-	-	13,359	39,861	7,602	34,728	95,550
	Total Salaries	**-**	**-**	**-**	**13,359**	**39,861**	**7,602**	**34,728**	**95,550**
	Fringe Fac/Admin@ 56.0%	-	-	-	7,481	22,322	4,257	19,448	53,508
	PTE @ 45.1%	-	-	-	9,399	28,045	5,348	24,433	67,225
	Total Fringe & PTE	-	-	-	16,880	50,367	9,605	43,881	120,733
Consortium		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-	-	-	-	-	-	-	-
Travel		**-**	**-**	**-**	**-**	**-**	**-**	**7,351**	**7,351**
	Instate	-	-	-	-	-	-	-	-
	Out of State	-	-	-	-	-	-	7,351	7,351
Equipment		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-	-	-	-	-	-	-	-
Supplies		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-	-	-	-	-	-	-	-
Other		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-	**-**	**-**	**-**	**-**	**-**	**-**	-
TDC Original Budget		**-**	**-**	**-**	**30,238**	**90,228**	**17,207**	**85,961**	**223,634**
Indirect Costs @ 9.5% of TDC		**-**	**-**	**-**	**2,873**	**8,572**	**1,635**	**8,166**	**21,245**
Fee @ 10%		**-**	**-**	**-**	**3,311**	**9,880**	**1,884**	**9,413**	**24,488**
Total		**-**	**-**	**-**	**36,422**	**108,679**	**20,726**	**103,540**	**269,367**
GRAND TOTAL		**22,616**	**22,282**	**-**	**73,829**	**120,455**	**20,726**	**103,540**	**363,448**

CUBRC

Budget by State Fiscal Year

CUBRC									
Proposal 9114R10.10.2008									
State Fiscal Year									
December 2008 - June 2009		Task 1.1	Task 1.2	Task 1.3	Task 1.4	Task 2.1	Task 2.2	Task 2.3	
		Budget	Budget	Budget	Budget	Budget	Budget	Budget	Total
PERSONNEL		**15,021**	**9,066**	**-**	**6,975**	**-**	**-**	**-**	**31,062**
Co-Principal Investigator, Task Leader	M. Flanigan	2,254	2,029	-	1,184	-	-	-	5,467
Co-Principal Investigator, Task Leader	A. Blatt	3,095	1,393	-	1,315	-	-	-	5,804
Data/GIS Analyst	K. Majka	-	583	-	454	-	-	-	1,037
Database/Software Design	J. Del Vecchio	-	-	-	-	-	-	-	-
Data/Information Analyst	M. Miller	1,286	-	-	129	-	-	-	1,415
	Total Fac/Admin FY	6,636	4,005	-	3,081	-	-	-	13,723
	Total Salaries	**6,636**	**4,005**	**-**	**3,081**	**-**	**-**	**-**	**13,723**
	Fringe Fac/Admin@ 56%	3,716	2,243	-	1,726	-	-	-	7,685
	PTE @ 45.1%	4,669	2,818	-	2,168	-	-	-	9,655
	Total Fringe & PTE	8,385	5,061	-	3,894	-	-	-	17,340
Consortium		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-	-	-	-	-	-	-	-
Travel		**3,755**	**-**	**-**	**3,596**	**2,028**	**-**	**-**	**9,379**
	Instate	-	-	-	-	-	-	-	-
	Out of State	3,755	-	-	3,596	2,028	-	-	9,379
Equipment		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-	-	-	-	-	-	-	-
Supplies		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-	-	-	-	-	-	-	-
Other		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-	**-**	**-**	**-**	**-**	**-**	**-**	-
TDC Original Budget		**18,776**	**9,066**	**-**	**10,571**	**2,028**	**-**	**-**	**40,441**
Indirect Costs @ 9.5% of TDC		**1,784**	**861**	**-**	**1,004**	**193**	**-**	**-**	**3,842**
Fee @ 10%		**2,056**	**993**	**-**	**1,158**	**222**	**-**	**-**	**4,428**
Total		**22,616**	**10,920**	**-**	**12,733**	**2,443**	**-**	**-**	**48,712**

CUBRC									
Proposal 9114R10.10.2008									
State Fiscal Year									
July 2009 - June 2010		Task 1.1	Task 1.2	Task 1.3	Task 1.4	Task 2.1	Task 2.2	Task 2.3	
		Budget	Budget	Budget	Budget	Budget	Budget	Budget	Total
PERSONNEL		**-**	**9,433**	**-**	**50,724**	**97,976**	**17,207**	**78,610**	**253,949**
Co-Principal Investigator, Task Leader	M. Flanigan	-	2,029	-	8,383	14,428	2,349	9,532	36,721
Co-Principal Investigator, Task Leader	A. Blatt	-	1,393	-	10,121	16,640	3,225	13,087	44,466
Data/GIS Analyst	K. Majka	-	746	-	2,723	3,983	679	2,749	10,880
Database/Software Design	J. Del Vecchio	-	-	-	-	2,964	-	4,589	7,552
Data/Information Analyst	M. Miller	-	-		1,181	5,269	1,348	4,773	12,571
	Total Fac/Admin FY	-	4,167	-	22,409	43,284	7,602	34,728	112,190
	Total Salaries	**-**	**4,167**	**-**	**22,409**	**43,284**	**7,602**	**34,728**	**112,190**
	Fringe Fac/Admin@ 56.0%	-	2,334	-	12,549	24,239	4,257	19,448	62,827
	PTE @ 45.1%	-	2,932	-	15,766	30,453	5,348	24,433	78,933
	Total Fringe & PTE	-	5,266	-	28,315	54,692	9,605	43,881	141,759
Consortium		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-	-	-	-	-	-	-	-
Travel		**-**	**-**	**-**	**-**	**-**	**-**	**7,351**	**7,351**
	Instate	-	-	-	-	-	-	-	-
	Out of State	-	-	-	-	-	-	7,351	7,351
Equipment		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-	-	-	-	-	-	-	-
Supplies		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-	-	-	-	-	-	-	-
Other		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		-	**-**	**-**	**-**	**-**	**-**	**-**	-
TDC Original Budget		**-**	**9,433**	**-**	**50,724**	**97,976**	**17,207**	**85,961**	**261,300**
Indirect Costs @ 9.5% of TDC		**-**	**896**	**-**	**4,819**	**9,308**	**1,635**	**8,166**	**24,824**
Fee @ 10%		**-**	**1,033**	**-**	**5,554**	**10,728**	**1,884**	**9,413**	**28,612**
Total		**-**	**11,362**	**-**	**61,097**	**118,012**	**20,726**	**103,540**	**314,736**
GRAND TOTAL		22,616	22,282	-	73,829	120,455	20,726	103,540	363,448

CUBRC

Travel Detail

CUBRC

Proposal 9114R10.10.2008

Travel Summary

Purpose	Year	TASK	City of Origin	Destination City	Hotel	Per Diem	Days	Nights	Subtotal	Airfare	Car Rental & Gas & Taxi per day	# of Trips	# of People	SubTotal	Cost per trip
Review / Stakeholder Mtgs	2009	1.1	Buffalo	Helena, Montana	107	44	3	2	$346	1410	81	1	2	$3,755	3,755
Technical Discussions with Univ MT	2009	1.4	Buffalo	Missoula, Montana	99	44	3	2	$330	1351	78	1	2	$3,596	3,596
Technical Discussions with OnStar	2009	2.1	Buffalo	Detroit, Michigan	105	49	2	1	$203	741	70	1	2	$2,028	2,028
Technical Discussions with Univ MT	2010	2.3	Buffalo	Missoula, Montana	99	44	3	2	$330	1351	78	1	2	$3,596	3,596
Review / Stakeholder Mtgs	2010	2.3	Buffalo	Helena, Montana	107	44	3	2	$346	1410	81	1	2	$3,755	3,755
Total Travel												5		$16,730	$16,730

Brain Injury Association of Montana

BRAIN INJURY ASSOCIATION OF MONTANA

PREVENTION · EDUCATION · ADVOCACY

1280 SOUTH 3RD STREET WEST · SUITE 4 · MISSOULA, MONTANA 59801

(406) 541-6442 · (406) 541-6443 · (800) 241-6442 · Fax (406) 541-4360

www.biamt.org · biam@biamt.org

June 4, 2008

Tom Seekins, Ph.D.
Assoc. Director of Research
Rural Institute on Disabilities
52 Corbin Hall
University of Montana
Missoula, Montana 59812

RE: Montana Automated Crash Notification Public Safety Infrastructure Research Program

Dear Professor Seekins,

Thank you for inviting the Brain Injury Association of Montana to submit this statement of interest with respect to the ACN grant.

The BIAMT provides a statewide self-advocacy telephone-based support service for people with brain injury. The Resource Facilitation Service accepts referrals from hospitals, and subsequently contacts people within two weeks after discharged from a hospital or emergency room with a known or suspected brain injury, and then follows up at six month intervals (more often if needed) over a two year period. RFS is an education and referral based service, and is not a case management or rehabilitation service. It assists survivors and their families to cope by providing education, referrals and information. RFS is also Montana's only accessible, toll-free source of information regarding brain injury.

In Minnesota, where this model was developed, RFS has been shown to improve family understanding and reduce family crises; help participants return to work at twice the national rate; reduce long-term dependence on public assistance; reduce risk of institutionalization; and help children get appropriate school services.

Montana's RFS is in its third year. Funding is provided by a small federal implementation grant and by the Brain Injury Association of Montana, which supports RFS with its memberships and other fundraising. The 2007 legislature appropriated one-time funds of $100,000, which will be available in July 2008. The BIAMT is committed to keeping, growing and improving this important public health service and believes that in future executive budgets, RFS will be included as a critical statewide program.

BRAIN INJURY ASSOCIATION OF MONTANA
PREVENTION · EDUCATION · ADVOCACY
1280 SOUTH 3RD STREET WEST · SUITE 4 · MISSOULA, MONTANA 59801
(406) 541-6442 · (406) 541-6443 · (800) 241-6442 · Fax (406) 541-4360
www.biamt.org · biam@biamt.org

The ACN grant is an opportunity for the BIAMT to expand hospital participation in RFS; educate policy-makers about the effectiveness of post-crash follow-up in minimizing

individual, family and social harms; explore the possibility of including others, including first responders, in the referral network; analyze and report on system capacity and

deficits; analyze and expand the RFS database to better track outcomes; and educate the public and key groups and associations about RFS and post-crash survival challenges.

We have developed a proposed budget (enclosed) for accomplishing these objectives during a 18-month period beginning August 2008.

Thank you again for recognizing that RFS is a vital and innovative public health program that can contribute to the success of the ACN initiative. The Board of Directors of the BIAMT looks forward to this partnership.

Yours truly,

Brenda Toner, MS, OTR/L, CBIS

Brenda Toner
Vice Chair
Board of Directors

Montana Traumatic Brain Injury Association

Scope of Work

1. Expand the Montana Traumatic Brain Injury Association's follow-up program.

    a. Work with the UMRID research staff to develop and conduct a survey of all Montana hospitals to assess their capacity and interesting participating in the MTBIA follow-up program.
    b. Identify training needs of hospital representatives.
    c. Organize and provide training (telephone, workshops, internet, or on site) to local hospital representatives, and identify training needs of new representatives as local hospital staff change.
    d. Develop and implement a system to maintain contact with local hospital representatives to sustain their conduct of referral protocol (e.g., monthly report, calls to hospitals that don't make referrals each month, etc.).
    e. Provide follow-up services to expanded referral network
    f. Monitor changes in referral patterns, issues addressed, and utility of referrals.
    g. Provide a report of system capacity, services, and needs to be included in project final report.
    h. Work with UMRID to develop a framework of community services and canvas those services to map their distribution and include them in a referral network.

2. Explore the option of including Montana Highway Patrol officers and other emergency responders into the referral network.

    a. Meet with representatives from the MTHP to assess the current crash response protocol and the possibility of including TBI screening and referral at the scene of car crashes.
    b. Include findings and recommendations in final report, including possible training.

3. Explore the potential of expanding MTBIA services to those with significant injuries sustain in car crashes other than brain injury.

    a. Conduct a systems review to identify requirements and needs to enable such expansion.
    b. Identify state-wide programs that may provide a model for such services (e.g., Colorado spinal cord injury registry, etc.).
    c. Estimate the additional costs required based on rates of MVCs.
    d. Develop a report outlining the cots and benefits of such expansion, and provide recommendations for the final report.

4. Review the current structure of the follow-up computerized database to identify needed improvements.

5. Disseminate progress and findings to relevant State groups.

    a. Develop a poster exhibit that includes issues and services relevant to follow-up with individuals injured in car crashes.
    b. Make presentations to report progress at the annual meetings of such groups as the Montana Hospital Association, the Montana Transportation Association, the State Independent Living Council, and the Montana Public Health Association.

10/3/08: Tramatic Brain Injury Subcontract for ACN 12/1/08 - 5/31/10 18 mth					10	8	0	7	11	0
Assumes 3% salary increase Oct of each year			12	6	Federal			State		
			12/1/08-11/30/09	12/1/09-11/30/10	12/1/08-9/30/09	10/1/09-9/30/10	10/1/10-11/30/10	12/1/08-6/30/09	7/1/09-6/30/10	7/1/10-11/30/10
Category	FTE	Base	**Yr 1**	**Yr 2**						
Morgan	*0.25*	30,979	7,783	3,989	6,454	5,318	0	4,518	7,254	0
Kucera	*0.75*	26,994	20,347	10,426	16,871	13,902	0	11,810	18,963	0
Salary	1.00		28,130	14,415	23,325	19,220	0	16,328	26,217	0
Benefits at 25%			7,033	3,603	5,831	4,805	0	4,082	6,554	0
Total Personnel	**1.00**		**35,163**	**18,018**	**29,156**	**24,025**	**0**	**20,410**	**32,771**	**0**
Travel Advisory Committee:			**1,791**	**1,692**	**736**	**2,747**	**0**	**1,791**	**1,692**	
Helena			347		347			347		
Great Falls			389		389			389		
Kalispell				402		402			402	
Billings				567		567			567	
Travel (2day, 1 night)										
Glendive, Miles City			696			696		696		
Kalispell, Libby			359			359		359		
Hamilton				71		71			71	
Lewiston, Havre, Glasgow				652		652			652	
Supplies			**1,300**	**150**	**1,250**	**200**	**0**	**1,175**	**275**	**0**
General			300	150	250	200		175	275	
Computer, Printer, & Software			1,000		1,000			1,000		
Printing & Reproduction			**120**	**60**	**100**	**80**	**0**	**70**	**110**	**0**
Photcopying			120	60	100	80		70	110	
Communications			**600**	**300**	**500**	**400**	**0**	**350**	**550**	**0**
Telephone: Fixed and local		*30/mth*	360	180	300	240		210	330	
Telephone: Long Distance		*5/mth*	60	30	50	40		35	55	
Fax		*5/mth*	60	30	50	40		35	55	
Postage (General)		*10/mth*	120	60	100	80		70	110	
Technical Support			**1,000**			**1,000**		**1,000**		
Other			**3,000**	**1,500**	**2,500**	**2,000**	**0**	**1,750**	**2,750**	**0**
Rent			3,000	1,500	2,500	2,000		1,750	2,750	
Total Subcontract			**42,974**	**21,720**	**34,242**	**30,452**	**0**	**26,546**	**38,148**	**0**
Combined Years:			**64,694**		**64,694**			**64,694**		

6/23/08: Tramatic Brain Injury Subcontract for ACN 8/1/08 - 1/31/10 18 mths										
Travel Detail										
		0.505		$23/day	$10/day					
Travel Detail (3 days, 2 nig	Miles RT	Mileage	Lodging	PerDiem	Misc	Total				
Helena	226	114	134	69	30	347				
Great Falls	336	170	120	69	30	389				
Kalispell	244	123	180	69	30	402				
Billings	690	348	120	69	30	567				
Lodging Rates										
Kalispell $90										
Helena $67										
Others $60										
		0.505		$23/day	$10/day					
Travel Detail (2 days, 1 nig	Miles RT	Mileage	Lodging	PerDiem	Misc	Total				
Glendive, Miles City	1128	570	60	46	20	696				
Kalispell, Libby	402	203	90	46	20	359				
Hamilton	95	48		23		71				
Lewiston, Havre, Glasgow	1042	526	60	46	20	652				